Gas Journal

VO .. 283. 107th YEAR. LONDON, JULY 27, 1955. Nº 4808. PRICE 1/3

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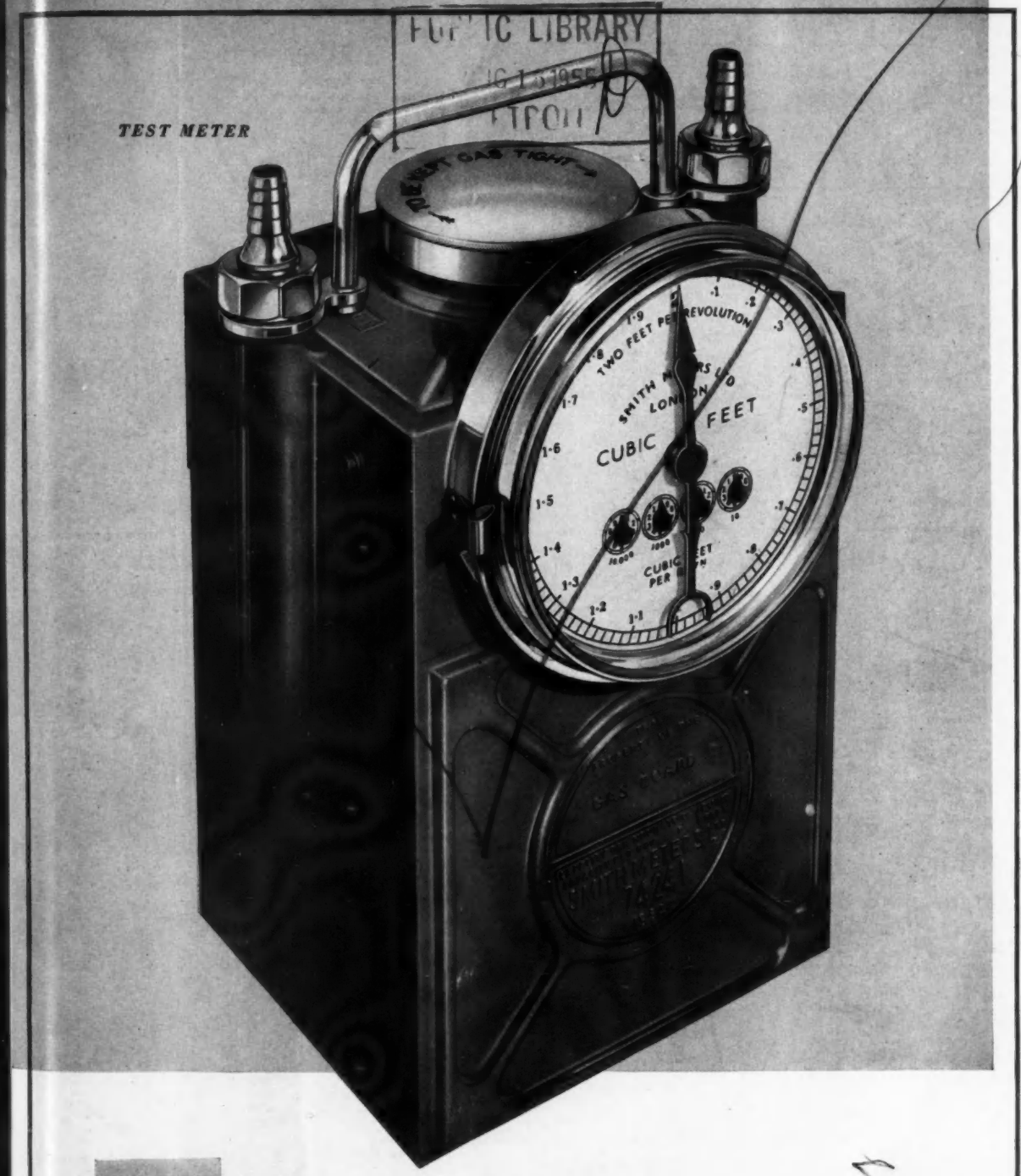

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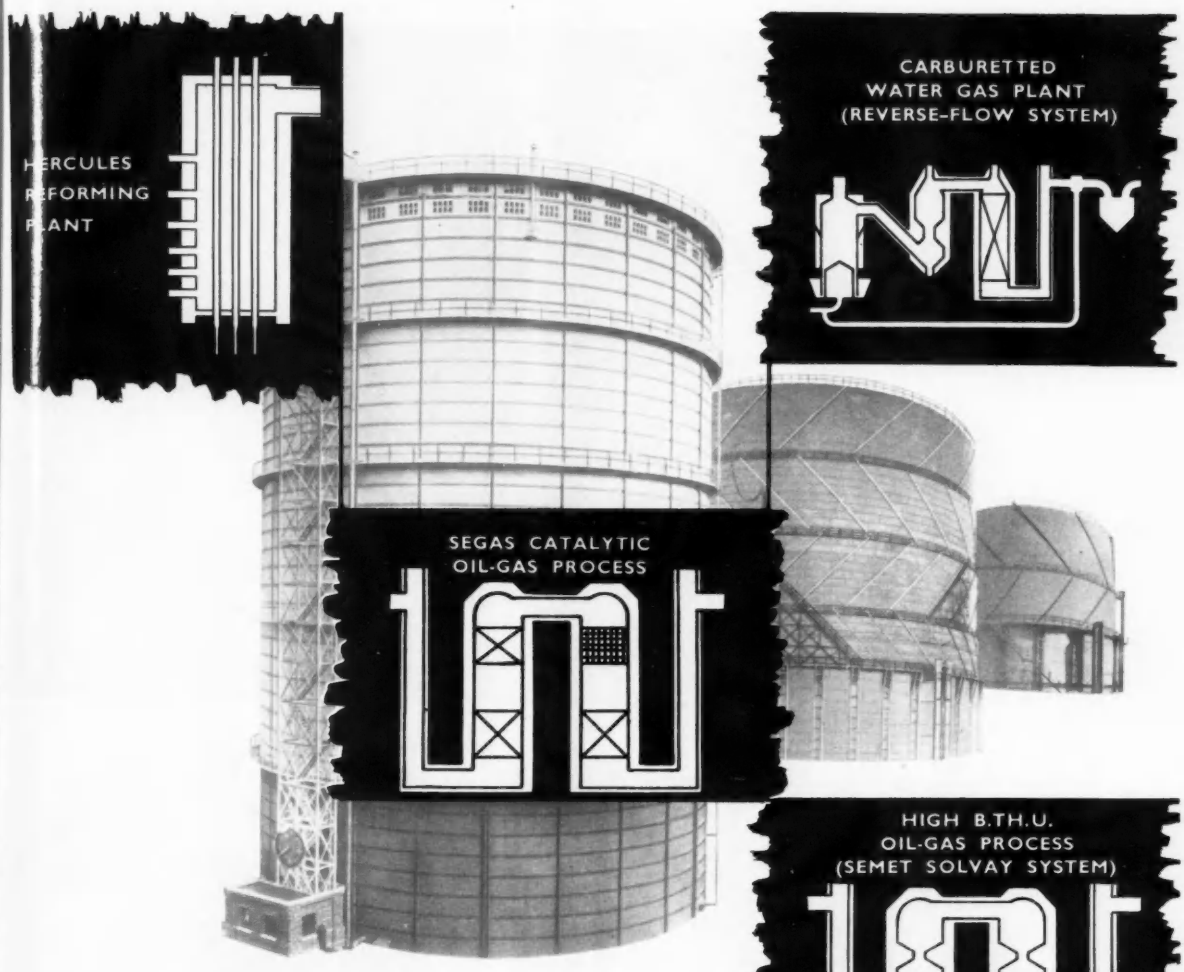
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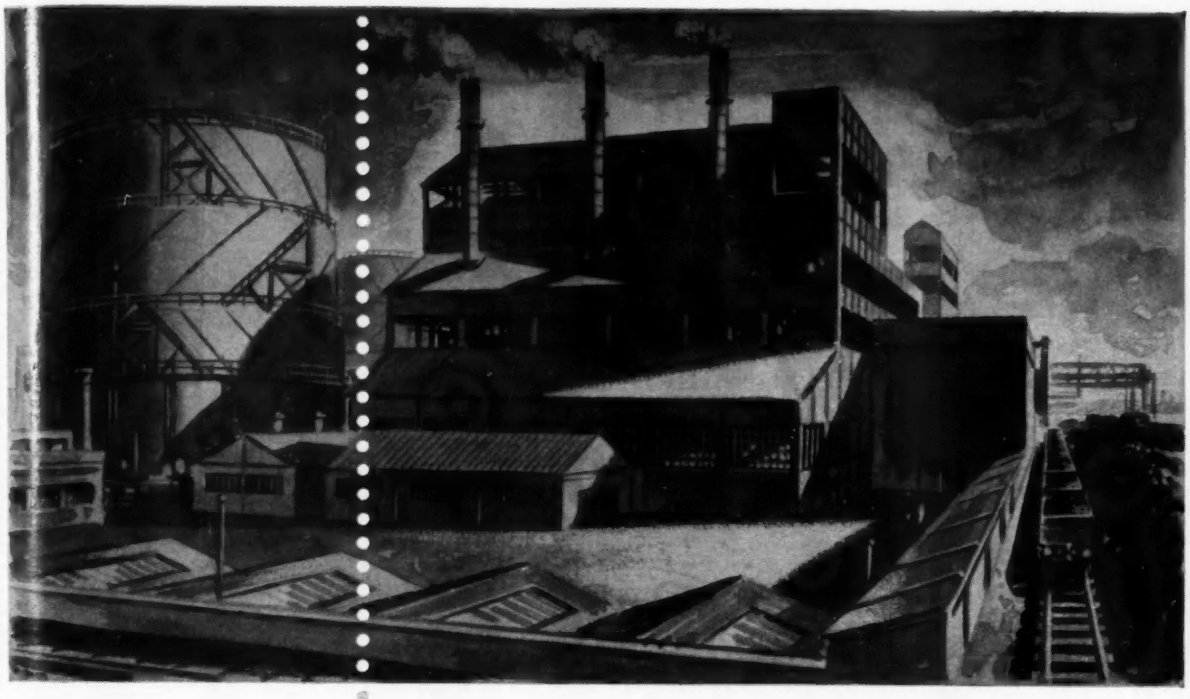

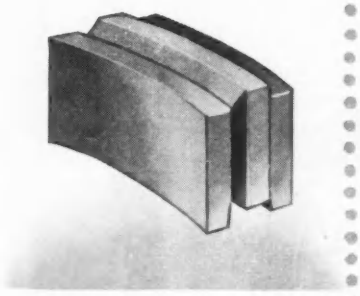

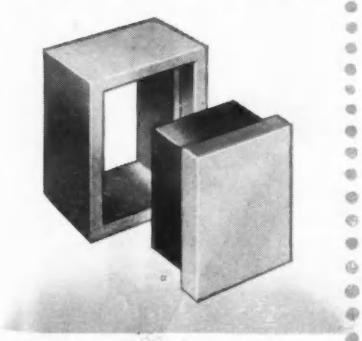

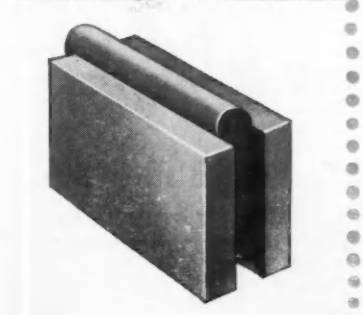

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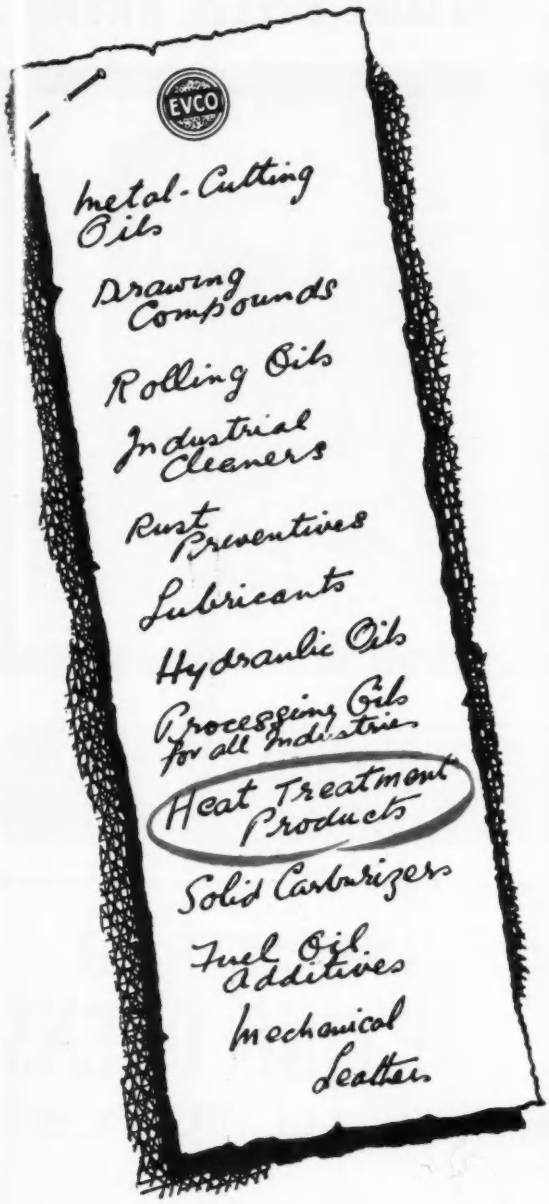

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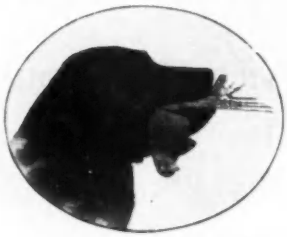
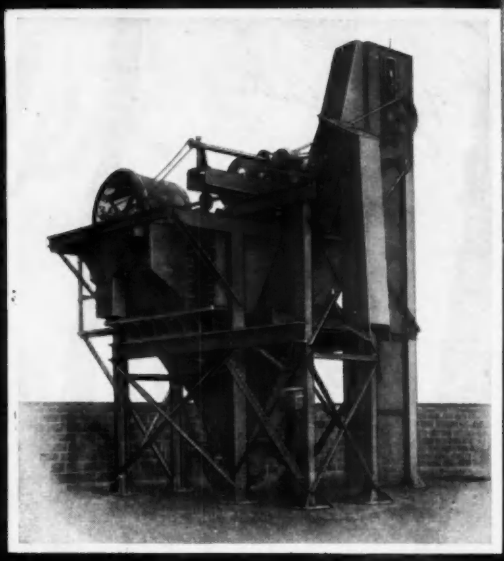


WASHER



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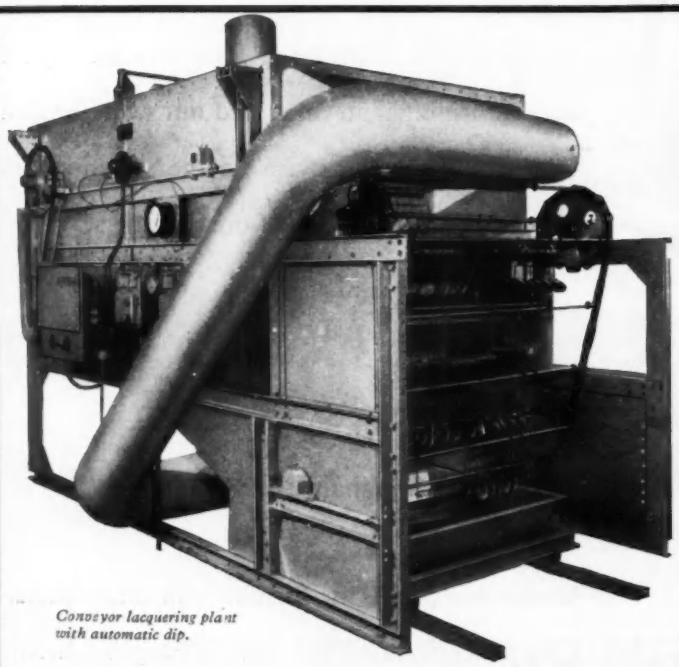

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So Easy, so Quick and so Clean, it's no trouble at all to grill an appetising meal for your friends thanks to

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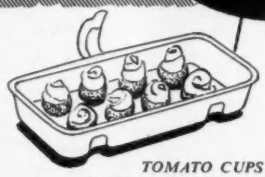
Breakfast

GRILLED LIVER

Cut the liver into slices ¼" thick. Brush with melted margarine, season to taste, and place in base of grill pan. Slice onion into rings, toss in flour, and saute in margarine around the liver 4–5 mins.

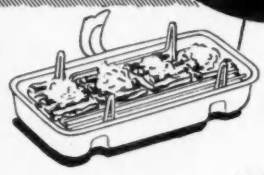
Lunch



TOMATO CUPS WITH ROLLED FILLETS OF PLAICE

Scoop out pulp from large tomatoes. Prepare and season fillets, sprinkle with lemon juice and roll, skin side innermost. Place in tomatoes with nuts of margarine on top. Brush tomatoes with margarine. Grill 10–15 mins. Garnish with parsley

Supper



SARDINES WITH CREAM SAUCE

Melt margarine, add breadcrumbs and milk. Beat thoroughly. Add chopped hard-boiled eggs and seasoning. Keep warm till needed. Grill sardines gently. Serve on buttered toast, covered with the sauce.

Wellman-Galusha Gas Producers

A battery of seven 10′ 0″ diameter Wellman-Galusha Gas Producers, for gasifying Natal anthracite coal—under construction at Vereeniging, Transvaal, South Africa. The installation is one of the most extensive gas producer plants to be erected initially as one battery in the British Commonwealth.

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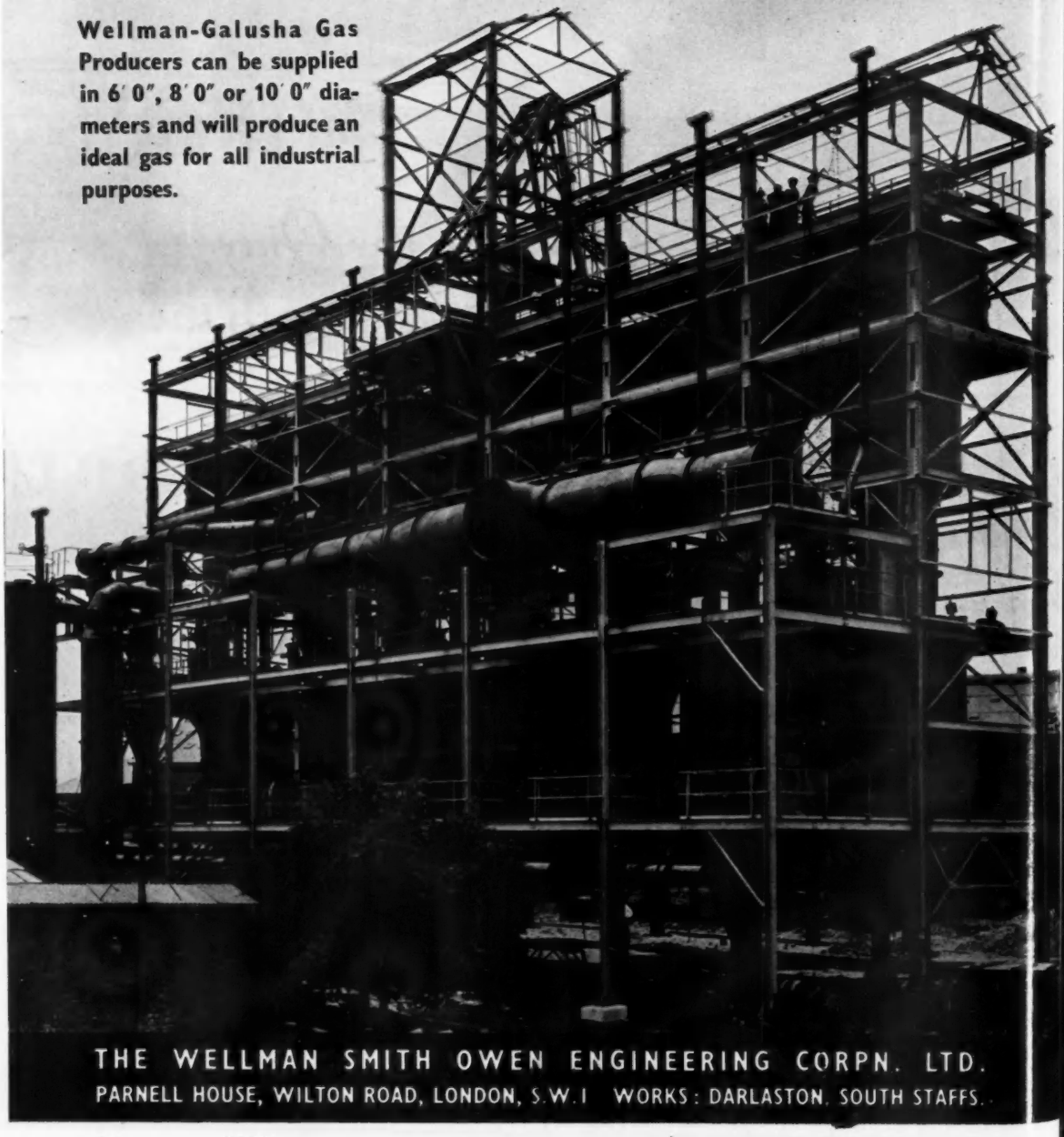

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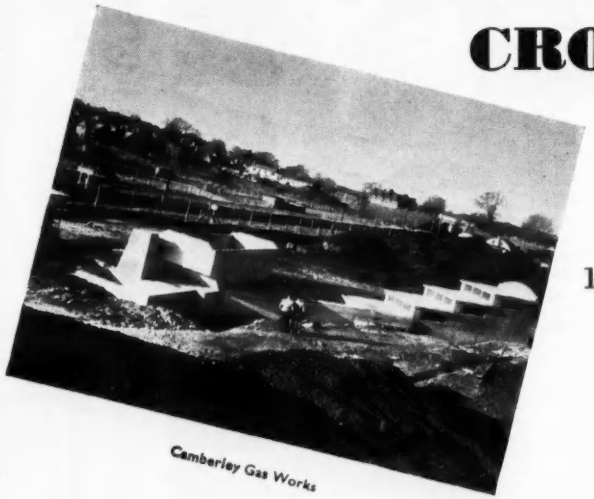
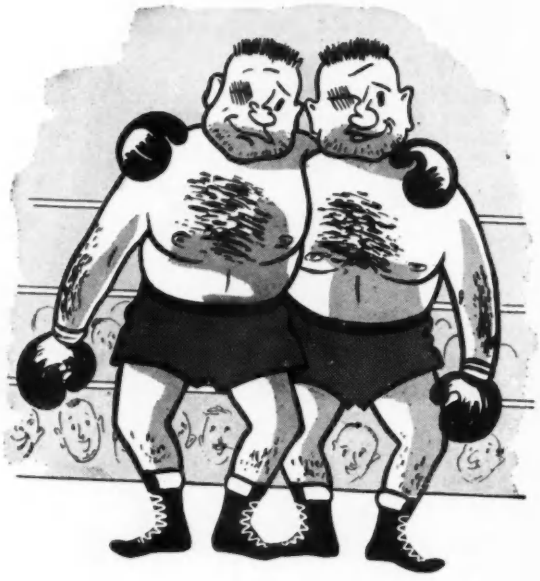


Camberley Gas Works

South Eastern Gas Board



Two of a kind

Elevator Buckets have to take punishment too. Ingham buckets are made that way; they duplicate EXACTLY the originals and each is as good as the next—round after round!

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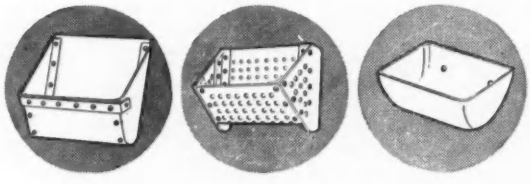

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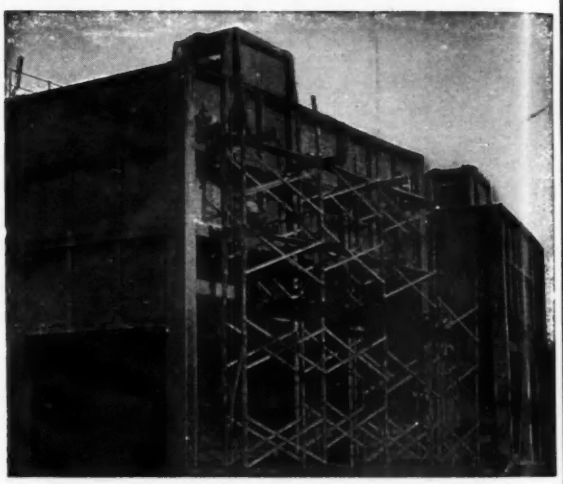
Gunite



One of the reinforced concrete structures reconditioned with Gunite for the City of Carlisle Gas Undertaking.

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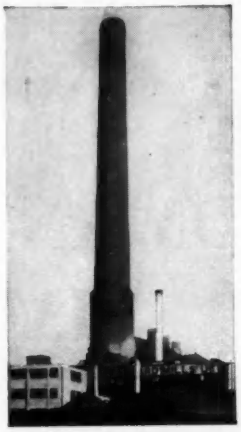
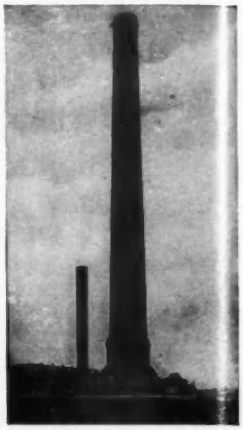
Left : Trial borings for reconstruction of Coventry Cathedral.





Two of the largest chimneys in the British Isles; on foundations of Francois Concrete Piles (left) and Francois Cementation Piles (Right)

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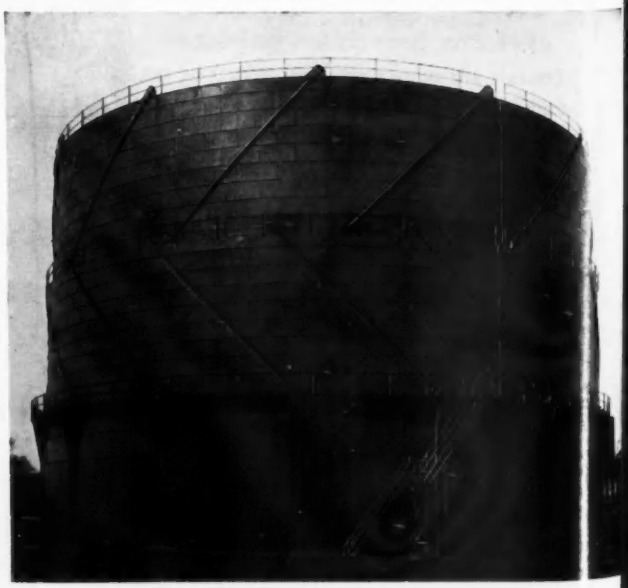

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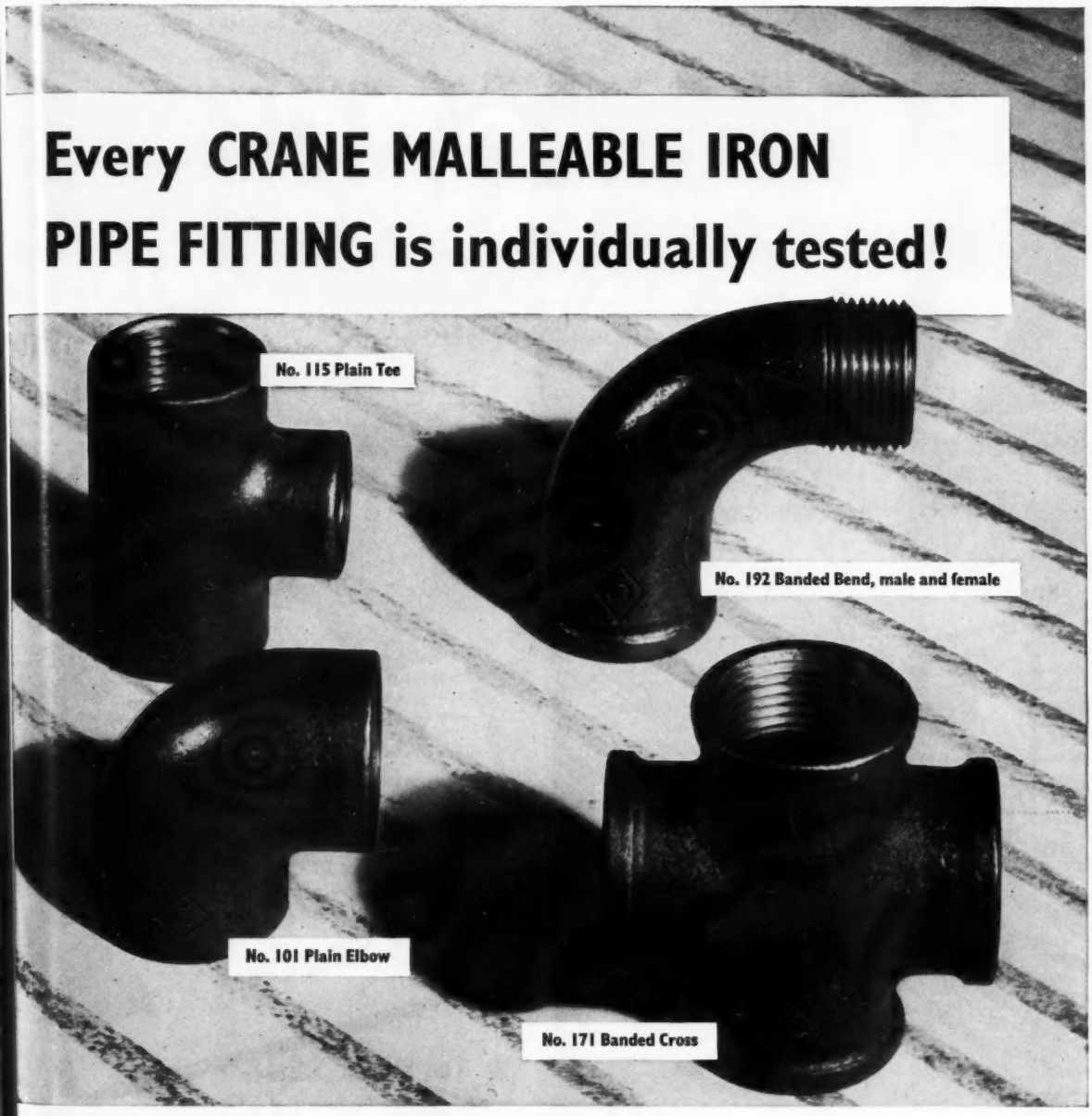

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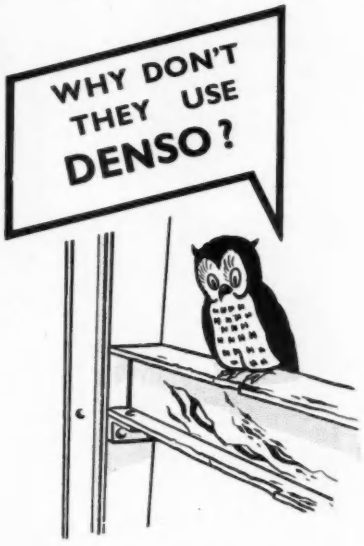

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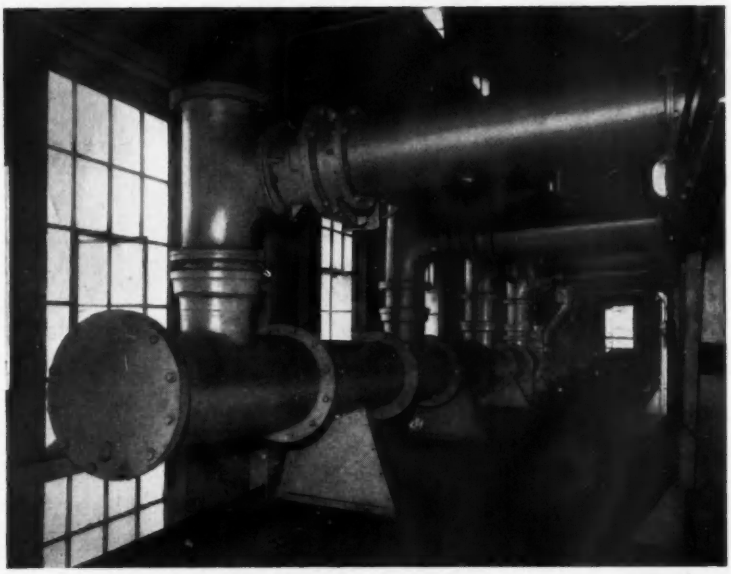

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By Courtesy of the Northern Gas Board

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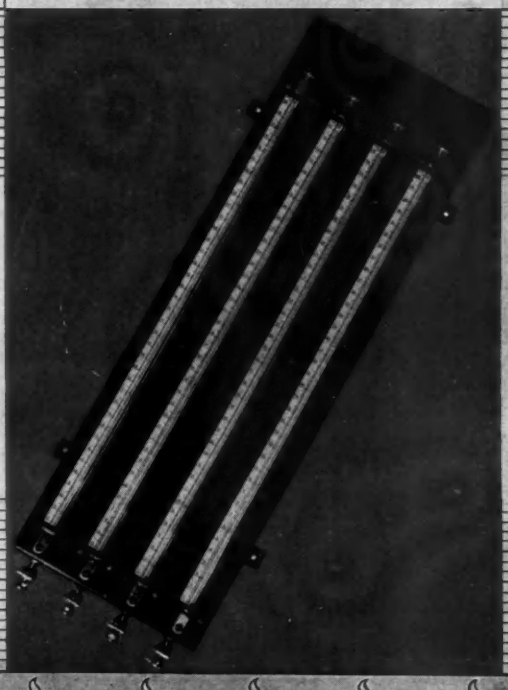

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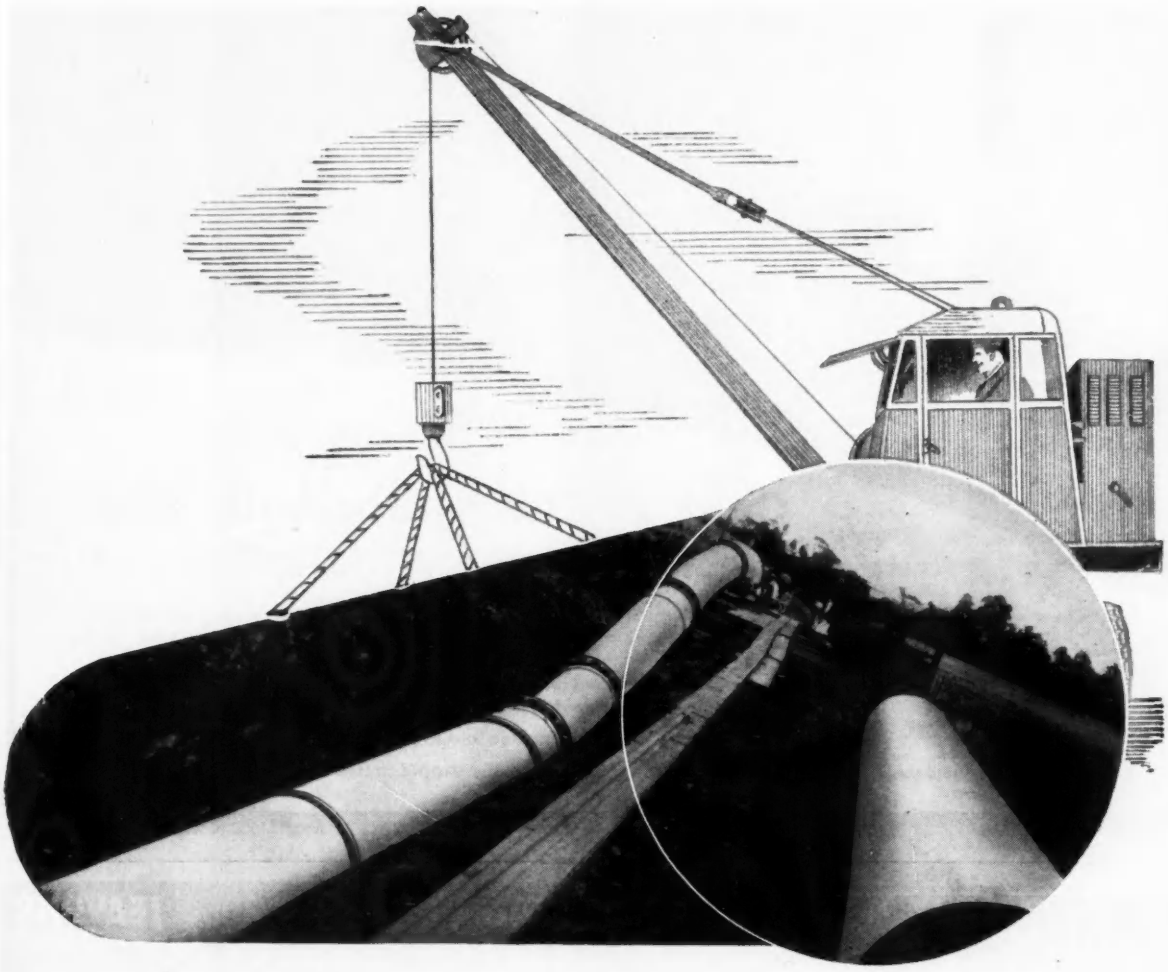

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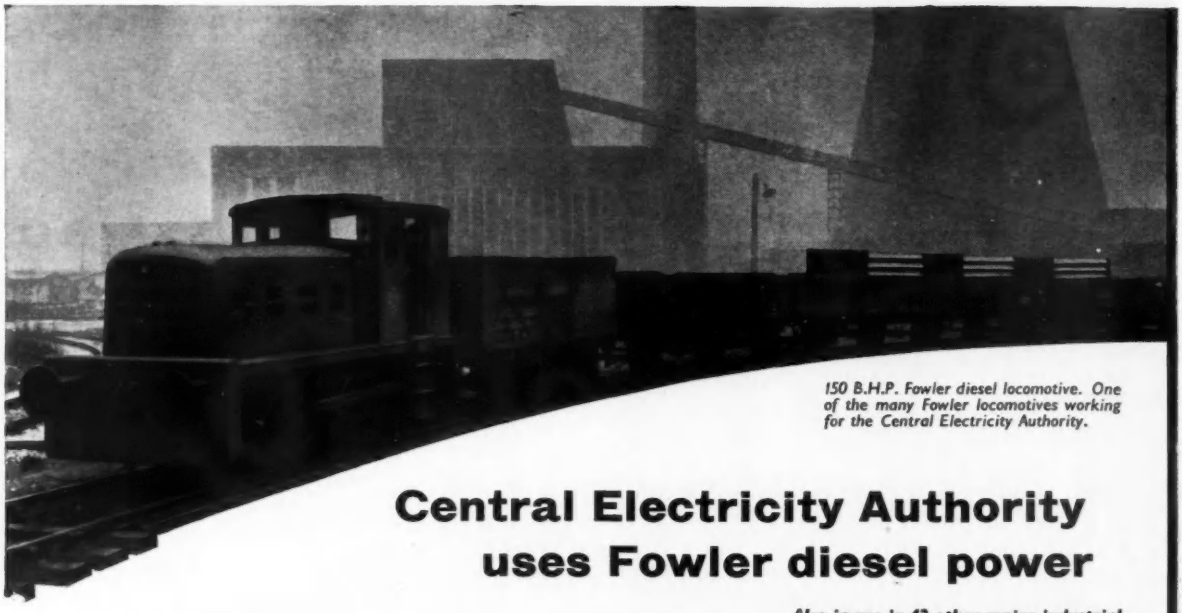

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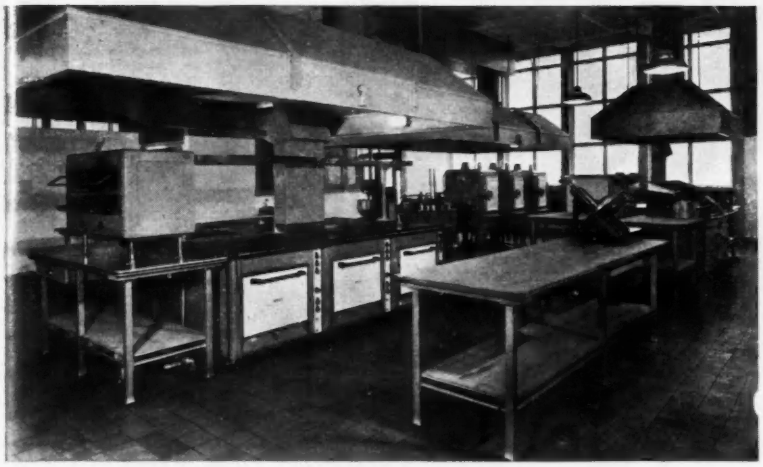

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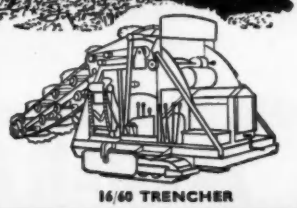

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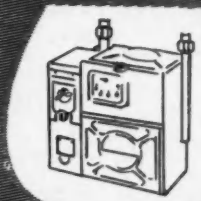

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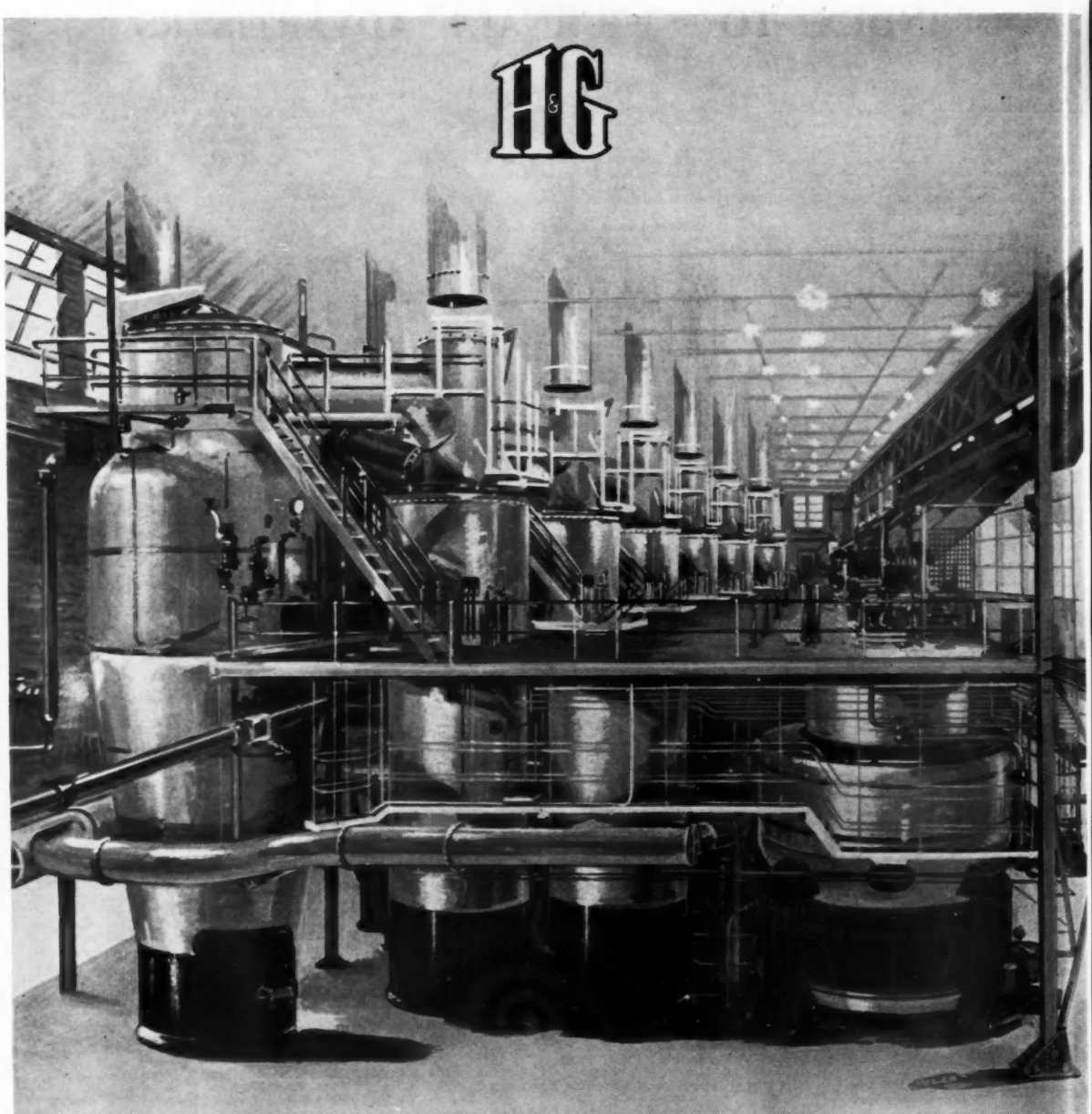

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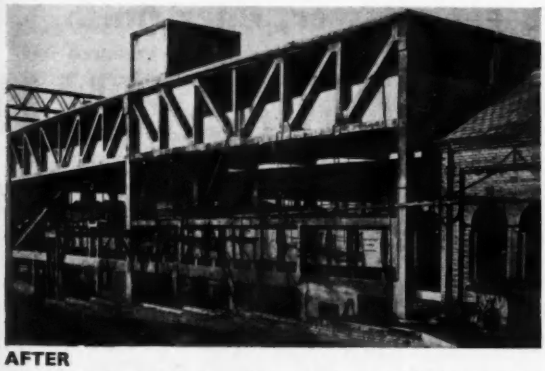

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VOL. 283 NO. 4808 July 27, 1955

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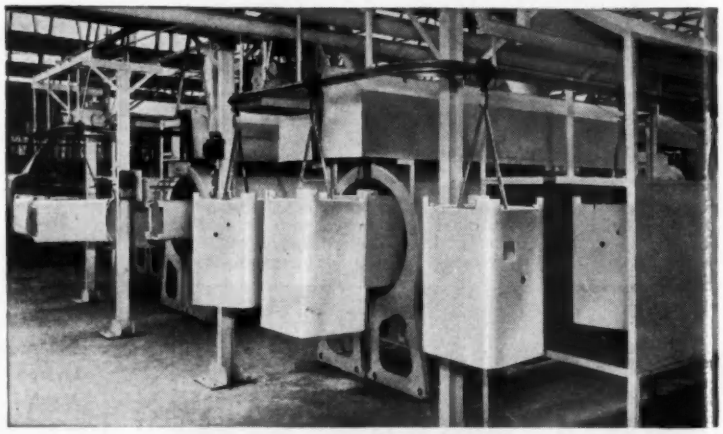

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Gas Journal

VOLUME 283. No. 4808. JULY 27, 1955. 107th YEAR

The Coal Debate

COAL has once again flared up into front page news. In the House of Commons last Wednesday Mr. Geoffrey Lloyd, Minister of Fuel and Power, moved that the House take note of the report and statement of accounts of the National Coal Board for 1954. Mr. Philip Noel-Baker, a former Minister of Fuel and Power, from the Opposition Front Bench, moved an amendment condemning the Government for its failure to pursue a vigorous and successful fuel efficiency policy. The amendment was defeated by 317 to 253, and the motion proposed by Mr. Lloyd was carried without a division. The main object of the debate appears to have been to ascertain whether the Government has any fuel policy at all. Apparently it has. Sir Oliver Lyle's suggestion (in his little classic 'Inefficiency' of some years ago) that economy might be encouraged by a big increase in the price charged for coal is not so ridiculous after all. The Minister now declares: 'The largest increase in the price of coal since nationalisation is the most powerful stroke for coal economy since the war.' Unfortunately, this increase is swallowed up in increased costs. It provides no margin for financing equipment for securing economy; that, presumably, is to be paid for out of taxation.

What then is the policy? Apart from some administrative measures, already bedevilled by politics, national policy is to be pinned to oil, with longing looks towards the coming atomic age. 'The result of these two allies' is that 'the spectre of the coal-gap was removed.' It is perhaps not unnatural that the national Press should regard this as a satisfactory, if interim, solution of the problem, that Mr. Nabarro found his crusade for a national fuel policy somewhat hamstrung—and that, for the moment, the debate on the main question is closed. But sooner or later the Ministry will have to get down to detail. And we are not, in saying this, joining in any way whatever in the attack on the party in power. The fuel question is too serious to be the shuttlecock of the party game. The *Manchester Guardian* headed its short editorial comment on the debate in Parliament: 'End of the Coal Age.' It discounts the hopes of increased coal output and says: 'It would seem wiser to make provision for a smaller annual output of coal than we get at present.'

To the gas industry the debate must go deeper into detail. 'Until now it has seemed that the country's fuel policy was determined by the Electricity Authority.' And it is not without significance that a scientific correspondent, in the same issue of the *Manchester Guardian*, analyzing the annual consumption of coal for groups of industry, puts among 'others,' 'the gas industry, miners' coal, and other minor uses.' In this category he postulates a fall of 1.6 mill. tons between 1954 and 1960, and no further change by 1965. The Minister himself told the House that he had had discussions with the gas industry, which was going to use new processes to make town gas entirely from oil. It was also making interesting arrangements with one of the oil refineries to take oil and petroleum gases direct from the refinery, which, incidentally, would greatly help the balancing of the refinery throughput. More than 1 mill. tons of coal would be saved by the gas industry by this use of oil. 'This is really only the beginning,' said Mr. Lloyd, 'because there has this year been a sharp rise in the use of oil for heating and for steam raising in general industry. In fact, the increase for steam raising in April was as much as 51% over the year before. Many big firms are considering switching to oil. Of the new boilers ordered by industry this year, 90% are either for dual firing or for oil and only 10% are for the use of coal only. I emphasize that all this took place before the last price increase that we are discussing today. That price increase is equivalent to a reduction of £1 a ton in the price of oil, and this is bound to have a powerful effect.' How the increased use of oil and the saving of 1 mill. tons of coal a year in the gas industry ties up with the accepted policy for reducing air pollution is not clear. The use of oil-gas rather than carburetted water gas for peak loads will liberate coke. Its use for base loads will, to say the least, add nothing to coke available to meet the increased demand for solid smokeless fuel. There is no sign in the policy put forward by the Minister of an appreciation of coal classification. There is no appreciation of the facts that something like one-half of gas-making coals and probably a similar proportion of coking coals are used, or misused, in simple combustion. So far as a national fuel policy is formulated it deals with the broad aspect only of coal in the gross. It must surely now get down to detail, not indeed that it can remove the advancing menacing spectre of the end of the coal age; it can at most defer it.

First, then, the fuel question must be removed from the field of party politics. It is a national emergency which is upon us. A truly national policy must be

formulated, and that quickly, to use every ton of coal as it comes to the surface to its maximum advantage according to its properties and quality. This policy must obviously take account of the nation's avowed intention to deal with air pollution. Every heating and every power-generating problem must be considered first in relation to its cost in terms of coal, and of the appropriate coal. Policy should be formulated by a convention of all the major interests, the weight of each in the nation's fuel council to be assessed, not by the money invested in it, but by the contribution it can make to the saving of coal, while contributing, too, to industrial productivity and public amenity. Atomic energy will loom large in this discussion, but so far we subscribe to the somewhat pessimistic view put forward by Dr. Bronowski that the most we can expect is that it may grow fast enough to take up the load from coal as supplies peter out and demand grows.

Changing Industrial Gas

TO say that the industrial gas salesman is expected to be a jack-of-all-trades and master of one—*i.e.*, that of the application of gas to several thousand industrial heating processes, has become somewhat of a cliché. Recently, in their paper to the Institution of Gas Engineers' Annual Meeting, Mr. Hayman, whose title might perhaps be 'Industrial Gas *Engineer* to the Gas Council,' and Mr. Patrick of Watson House, called him to a new view of his opportunity, to appreciate a world in which, to an unprecedented extent, productivity is more important than fuel cost. Full employment and the increased cost of labour are driving the industrial gas engineers' clients to seek more output per man while maintaining the improved working conditions necessary to attract labour. They have also to ensure safety and means for reducing plant maintenance while increasing availability. To secure his business the industrial gas officer is called upon to survey the industries of his district and to anticipate the needs of everyone using, or likely to use, heat in any form whatever. It is a big task.

It was perhaps inevitable that this very interesting and readable paper should have been to a large extent anecdotal. But the general principles were also there. They are summed up in the two phrases, service to the industrial fuel consumer, and service to the industrial appliance manufacturer. Service to the consumer passes through two stages, one of which may be by way of the appliance manufacturer—that of securing the introduction of gas to the problem, and of keeping in contact with the installation to ensure satisfaction. The authors quoted Mr. Higgs: 'A visit to existing and potential industrial users once every three months is suggested as a desirable aim.' And the new, and encouraging, note is that 'many industries are willing to use more fuel, or a more expensive fuel, if by doing so they gain by reduced labour costs greater floor space or reliability and a consequent improvement in the overall productivity of the process.' The tables in the paper show that in many industries fuel itself is a very small fraction of production costs. Gas would appear to have all, or nearly all, the qualities, properties and possibilities to secure a growing share of the load in all except, perhaps, the very 'heavy' industries. The industrial gas engineer must add to these qualities and properties, precision of control, safety and reliability in operation.

Design for increased productivity is shown to be a direct result of the 'well-known advantages of gas' provided these are applied in good designs with controls and equipment to secure reliability as well as economy and efficiency. Design for the 'unexpected' and design for the 'dirty process,' would seem to require, with robust design and as much foresight as possible, an assiduous after-service to detect and correct imperfections revealed in practice.

One of the most interesting sections of the paper is that referring to the seven (sample) 'tribulations of evangelism.' All would seem to be capable of being surmounted by tact and persistence, backed, of course, by the omniscience which is expected of the industrial gas engineer—'a firmer and more confident approach to the purchaser,' with sufficient knowledge of costing to prove to him that expenditure on governors, thermostats, and so on, will show a profit. But one must admit to difficulty with the seventh tribulation—'no answer at all to our overtures'! Presumably one just waits for people like that to die.

The discussion was as entertaining as the paper, which is not surprising when one looks over the names of the contributors. Mr. Haynes again urges the industry to take steps 'to ensure an adequate supply of properly trained and educated industrial gas engineers and salesmen, and to pay them accordingly.' It is possible that the men to be found and trained must be born with a certain flair for this exacting but intensely interesting work. Mr. L. W. Andrew is richly entitled to call attention to 'an immense field to be explored in the fundamental aspects of appliance design.' Mr. Hems is equally able to claim merit for the excellent work which, inherited from Dr. Walter, he and his staff have done and are doing in the Birmingham Industrial Gas Centre; it is good to be assured that the West Midlands Gas Board continues to support this work. And in Mr. Higgs he has a loyal lieutenant who has himself made a valuable contribution to this subject. Mr. Phillips of the Eastern Gas Board gave a warning of competition from electronic heating. 'High and low frequency and dielectric heating has many advantages—capable of producing heat localized where the heating is required.' It may be that the industrial gas engineer should himself point out (we think he could afford to) where electricity is the correct medium for the particular problem. Mr. Phillips 'wholeheartedly agreed' with the authors that the gas industry should aim to be 'five years ahead of the fashion in equipment design.'

Mr. Patrick, in his reply to the discussion, was able to report that applicants for positions at Watson House showed an inclination towards industrial work. This is very satisfactory. There is a field for adventure in industrial gas which must appeal to a keen young man, if he can be led to see it. Mr. Patrick also called attention, once more, to the lag between the results of fundamental investigation and their application to practice. The problem is to present such results to the industrial gas engineer 'in a form which he can apply.' It was good to learn that Watson House has a reply to dielectric heating. The army of industrial gas engineers is evidently in good heart. All it seems to need is an influx of recruits to its ranks.

American Way of Industry

THE 'restlessness which pervades American life, characterized by impatience with conventional methods and readiness to abandon unsuccessful ventures,' is one of the factors found significant in American business life by groups of young British managers who visited that country recently. In a book entitled 'Reporting Back' (Management Publications, Ltd., P.O. Box No. 483, Management House, 8, Hill Street, W.1, 7s. 6d., post free), these groups describe their studies connected with the Universities of Cincinnati and Syracuse during 1951-52 and 1952-53 under the auspices of the Mutual Security Agency. Other factors which impressed them were the high social prestige of business in general and of the manager in particular the dogmatic belief in competition and the individual; the extent to which production, price, employment, and economic existence are governed by the volume of sales; and the resultant cost-consciousness in every department and at all levels, and the widespread application of budgetary and cost control systems.

From the report it can be seen that the industrial atmosphere is one of optimism. The writers say: 'Today America is a nation which can truly be described as a going concern. It is a machine geared to production and has gathered great momentum. The frustrations and difficulties experienced in Britain since the war, due to lack of raw materials and capital equipment, are far less frequent. There is an irresistible urge to advance. With a constantly growing population, markets are steadily growing in step with plant capacity. The depression years when business fell into bad odour are almost forgotten.'

Possibly the students had their noses a little too close to the actual grindstone of industry to be alive to the broader economic picture, in favour of miniature snapshots of the worker in relation to his boss and works practice in relation to workshop economy. But observation and comparison with British counterparts is of a high order when it comes to organization and policy-making. A surprising feature of the report—although the students have accepted it without a lifting of the eyebrows—is the almost complete lack of opportunism in American industry. There is mention of organizational charts—occasionally used 'as the basis for a replacement schedule with the object of creating a reserve of qualified personnel whose elegibility for promotion has been systematically assessed.' But they point out that the opinion has been expressed that a rigid organizational chart militates against the working of informal executive control (meaning executives, who, by virtue of the combination of their personality and experience, are able to perform a wide range of duties and can co-operate easily with colleagues). Nevertheless, it seems from the tone of the report that the 'blue eyed boy' and unskilled opportunist is on the way out. Finally, we recommend this idly selected sentence to be put into the imperative for all British industry (although the report does not indicate superiority of American working, necessarily): 'Successful experiment is not allowed to crystallize into uncritically accepted custom, while unsuccessful experiment is taken as an occupational risk, and is set against the experience that has been gained.' A few of our industrial executives might well be *allowed* to use that as their pace-stick.

NEW CURB ON HIRE PURCHASE

SALES of gas appliances, already adversely affected by the hire purchase restrictions imposed last year, will be further curtailed as a result of the new limitations announced by the Chancellor of the Exchequer on Monday. Coming closely on the heels of the record increase in the price of coal with its consequential effect on the price of gas and coke, the raising of the initial deposit on hire purchase transactions for refrigerators, washing machines, domestic space heating appliances, dish washers, and drying cabinets from 15% to 33⅓% imposes a serious handicap on the gas industry in its efforts to assist the clean air campaign. Cookers, water heaters, and wash boilers remain subject to a 15% deposit, and coke fires are still free of restriction, but Mr. Butler's plan for curtailing home spending in order to free more goods for export will undoubtedly make it harder for the gas industry to attract consumers into its showrooms. We still do not seem to be able to divide luxuries from essentials.

THE ENGLISH ARE SO COLD!

IT is always interesting, if not always pleasant, to hear a disinterested comment about ourselves by a stranger from abroad. M. Roger Valvert, London correspondent of the French economic review *Hommes et Commerce*, is no stranger to Britain, but is still amused at some of her extraordinary characteristics. A translation of an article of his appears in the Summer edition of *Smokeless Air*, journal of the National Smoke Abatement Society. It is entitled 'A Frenchman Looks at Britain's Smoke.' After describing 'smog,' M. Valvert says of its source, the domestic fire, 'These fires, of course, do not heat, but this is not sought after in a country where even when it is freezing the windows of the buses are very often open and where any attempt to keep warm gives the native an insupportable feeling of guilt. . . . These fires then do not heat, they burn in order to be seen in the living room by the whole family sitting down on armchairs and sofa, spread out fanwise at a distance judicially chosen so that faces are cooked and backs frozen. One and all, in silent and sober communion with the dancing spirit of the fire, stretch out comfortably beneath the draught from an open window which satisfies their insatiable desire for fresh air.' Opening another window and taking a deep breath, we would first of all remind M. Valvert that we have no such celebrated air-sweeteners as Gauloise Caporal cigarettes to keep our lungs at full pitch. But apart from the author's unwarranted attack on our love of fresh air, he is right of course. His article is sharp with poker-faced humour and has an appeal of a broad type which might well appeal to the Briton's sense of the ridiculous. Of course, the article is well-informed and it is also deadly accurate.

He gauges the reaction to the Beaver report and understands perfectly the difficulties—financial and sentimental—which stand in the way of *real* fresh air in Britain. To conclude, let us hear how close to fundamentals M. Valvert gets when he looks at the domestic hearth: 'If then this method of heating does not heat, it teaches the English to live in what Continentals would consider cold. In consequence, this waste of energy proves remarkably economical for the national and private budget. The latter, in fact, which is made very differently from ours, could not bear the cost of the tons of anthracite required for our salamanders or certain of our old stoves and central heating appliances.' This article is well worth reading, and together with a contribution on 'Pollution from Nuclear Explosions,' makes this issue of the publication (obtainable from Palace Chambers, Bridge Street, London, S.W.1, price 1s.) the best to date.

Personal Notes

DR. GORDON MILLAR has been appointed Area Medical Adviser for the Eastern Gas Board. Since 1947 he has been the Medical Officer at Tottenham.

MR. A. T. SCALES, until recently Sales Manager of J. C. Neville, Ltd., 34, Priests Bridge, S.W.14, has been appointed Sales Director. The Company markets the 'RG' tube cutting and screwing machine in the United Kingdom and many overseas countries.

SIR HOWARD ROBERTS, who retires next January from the position of Clerk to the London County Council, has been elected President of the Royal Society for the Prevention of Accidents in succession to SIR CHARLES BARTLETT, who resigned in April due to continued ill-health. Sir Howard has rendered outstanding service to the Society during the last 30 years. He now relinquishes the positions of Chairman of the Society's National Executive Committee, and also Hon. Solicitor. He has held the latter post for over 20 years. New Vice-Presidents elected include Mr. Philip Noel-Baker (a former Minister of Fuel and Power) and Sir Ewart Smith, Deputy Chairman of Imperial Chemical Industries, Ltd.

SIR FREDERICK J. WEST, a Past President of the Institution of Gas Engineers, has resigned from the Board of Manchester Liners, Ltd., in order to reduce his commitments.

MR. LAWRENCE E. WEST, Secretary to West's Gas Improvement Co., Ltd., was elected Director of the Company at the annual meeting of shareholders held in Manchester on July 14.

Baird & Tatlock (London), Ltd., announce that they have received a contract for £20,000 to supply scientific instruments and apparatus for agricultural laboratories in Yugoslavia.

The Three Finalists in the *Middlesbrough Evening Chronicle* 'Cookeen' apple pie contest chose gas cookers in which to bake their entries. The grand finale was held on June 28 and the winners were: Mrs. J. O'Keeke, Stockton (£50); Miss I. Rider, Middlesbrough (£25); and Mrs. K. Rayson, Redcar (£15). The Northern Gas Board loaned three De La Rue G.4 coloured cookers for the occasion.

Diary

July 28.—NORTH THAMES G.C.C.: Westminster City Hall, Charing Cross Road, W.C.2, 2.30 p.m.

September 12-14.—GAS COUNCIL: Gas Sales and Service Conference. 'Heads of Ayr' Holiday Camp, Ayr. (For final draft programme see 'JOURNAL', p. 209.)

September 13-16. — ASSOCIATION OF PUBLIC LIGHTING ENGINEERS: Annual Conference, Folkestone.

September 19. — WEST MIDLANDS G.C.C.: Committee Room, Gas Offices, Edmund Street, Birmingham 3. 2.30 p.m.

September 21.—MANCHESTER JUNIORS: Visit to K.L. Cranes, Ltd., Letchworth.

September 22. — STANTON IRONWORKS CO., LTD.: Mr. Geoffrey Lloyd, Minister of Fuel and Power, opens coke oven extensions.

September 22.—SCOTTISH ASSOCIATION OF GAS MANAGERS: Annual General Meeting, Town Hall, Inverness. Autumn golf and bowls competitions on September 21; annual outing on September 23.

October 5.—MIDLAND JUNIORS: Report on the Paris visit. Birmingham.

INSTRUCTORS AND TRAINING AND EDUCATION OFFICERS CONFER

What is believed to be the first conference of its kind in the gas industry—a three-day conference of instructors and training and education officers—was held by the North Western Gas Board at Lyme Hall, Disley, Cheshire, from July 5 to 8. It was attended by 25 of the Board's gas fitting instructors, and the six group training and education officers appointed during the last two years to implement the Board's comprehensive training plans also attended.

MR. H. BUTTERS, Board Member, who opened the conference, said that it was important that all concerned with training should get to know one another. Their task was of the highest importance to the future of the Board, since the ability of new recruits to master their jobs largely lay in their hands. It was essential, therefore, that the instructors themselves should receive every opportunity for developing their capacity as teachers.

MR. H. TEASDALE, the Board's Training and Education Officer, said there had been little attempt so far to get recommendation's on the Board's educational policy from anyone below the rank of group officer. A residential conference like this provided opportunities for everyone to express a point of view. Such two-way traffic could have a tremendous effect on policy.

During the conference lectures were given by many of the instructors, and these were followed by discussion. Subjects ranged from 'Relations between Instructor and Apprentice' to 'Visual Aids,' and from the Hilmor bending machine to note-taking technique.

Lyme Hall, in which those attending the conference stayed, is the former home of the Legh family, and dates from Elizabethan times.

Mr. H. Butters addresses an informal gathering in the ancient courtyard.

TOWN GAS BY CATALYTIC CRACKING OF PROPANE

GAZ DE FRANCE has recently developed a method of town gas production by the catalytic cracking of propane, and permission to build these plants in the British Isles has been given to Tully Engineering Co., Ltd. Plants having capacities from 100,000 to 300,000 cu.ft. per day have already been constructed and put into operation, and units having a capacity of 500,000 cu.ft. are under construction. Fig. 1 shows three typical units each having a capacity of 300,000 cu.ft. per day that have been installed at Montlucon. Fig. 2 shows the panel for controlling the whole of the installation.

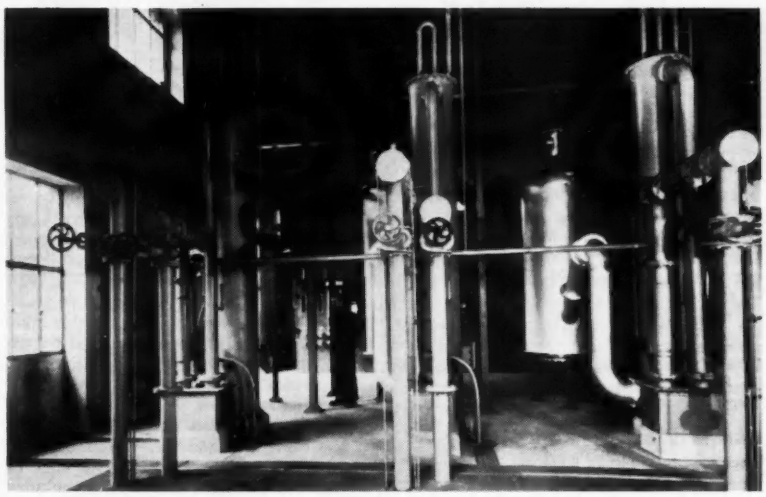


Fig. 1. Three typical catalytic cracking units each having a capacity of 300,000 cu.ft. of town gas per day at Montlucon

From Fig. 3 it will be seen that air and propane are admitted at the top of the reactor and pass through the catalyst bed. The resulting gas leaves the reactor at its base and then passes up through the scrubber, filled with Raschig rings, and the cold washed gas leaves this vessel and passes down to a sealed box situated at ground level. As the gas leaves the sealed box the enrichment propane is injected into the mixing chamber incorporated in the gas main and the resulting enriched gas passes out to the storage holder. The reactor, scrubber and seal box can be seen in Fig. 1.

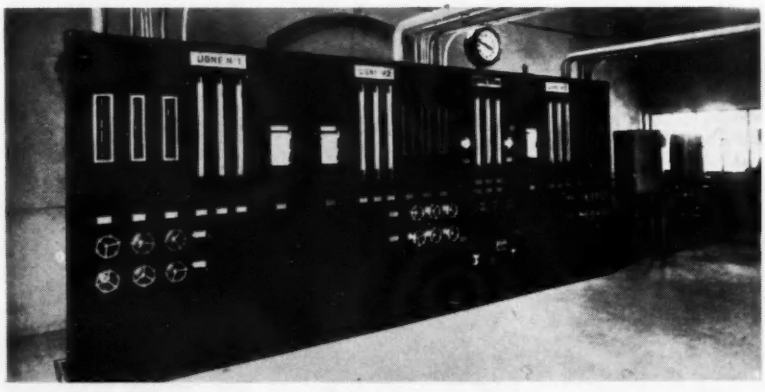


Fig. 2. Control panel for the whole of the installation, incorporating valves for control of air, propane for cracking, and propane for enrichment

The control panel is shown in Fig. 2, incorporating valves for the control of the air, the propane from cracking and the propane from enrichment. Each of these control valves is preceded by a stop valve and a flow meter is incorporated in each service. Normally a rotameter type flow indicator is used. The control panel incorporates a 3-point recorder for pyrometers situated at the top, middle and base of the catalyst bed, and also provides a bank of three water gauges to measure the various pressures through each manufacturing unit. Electrical switchgear is mounted on the control panel and includes isolators and contactors for the air compressors and for the exhausters. Pressure gauges are also provided for measuring the air and propane pressures where these gases enter the reactor. Safety devices are incorporated in the electrical switchgear to stop the plant in the event of failure of the air compressor or the propane supply.

The manner of operating the plant is extremely simple and consists merely of burning propane in the catalyst bed until the desired temperature has been reached. During this heating up period, prior to putting the plant into operation, the waste gases are exhausted to atmosphere by means of a small centrifugal type exhauster. The air cracking propane and enrichment propane are then adjusted to give the desired conditions in the reactor and the desired calorific value respectively, and no further operation is necessary.

The gas manufactured requires no further cooling, washing, or purification, and can be immediately distributed after manufacture. Moreover, there are no by-products from the plant (such as tar) or any waste products (such as ashes), and

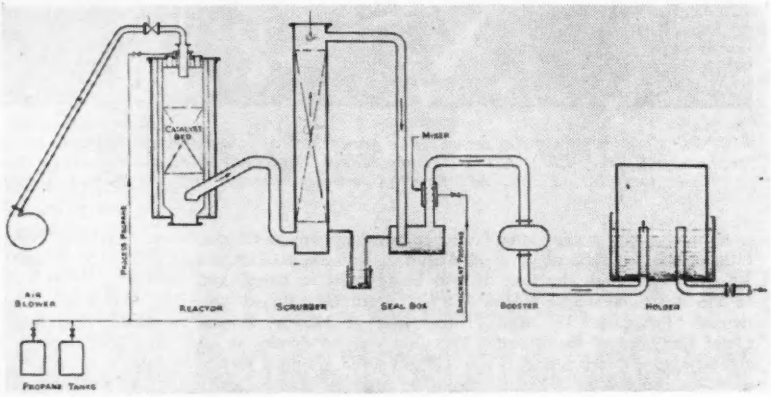


Fig. 3. Diagrammatic arrangement of the G.D.F. catalytic cracking propane plant

consequently the process is simple, and under the circumstances a very economic process of gas manufacture. A typical gas obtained from the reactor has the following properties:—Analysis, CO_2, 2.8; CO, 19.0; H_2, 23.4; CH_4, 3.6; N_2, 50.4; O_2, 0.8; specific gravity, 0.766 (air = 1.00); calorific value, 169 B.Th.U. per cu.ft. (60°F. 30°Hg.).

The gas produced by the reactor is enriched by adding further propane to the supply, and approximately 15.2% of propane is required to give a calorific value of 400 B.Th.U. per cu. ft. and 17.5% to give a calorific value of 450 B.Th.U. per cu.ft.

Table I gives further details of the percentage of propane required for the enrichment, together with the Wobbe Index and specific gravity of the mixed gas in the range of 350-550 B.Th.U. per cu.ft.

TABLE I.—Gas Properties

Calorific value, B.Th.U. per cu. ft.	400	450	500	550
Propane for enrichment, %	15.2	17.5	23.2	26.8
Wobbe index	436	486	535	583
Specific gravity (air = 1)	0.841	0.857	0.875	0.890

At the present time it is understood that the approximate cost of propane ex refinery is in the region of £20 per ton and, depending on the method and frequency of delivery to site, this may cost up to £26 per ton delivered to the plant, plus cost of gas production. In general the total labour requirements are one man for the whole of the installation, and on computing the cost it has been assumed that the load factor is approximately 66% and the cost of labour 28s. per man shift. Also included in the cost of gas production are the electric power charges, capital and maintenance charges.

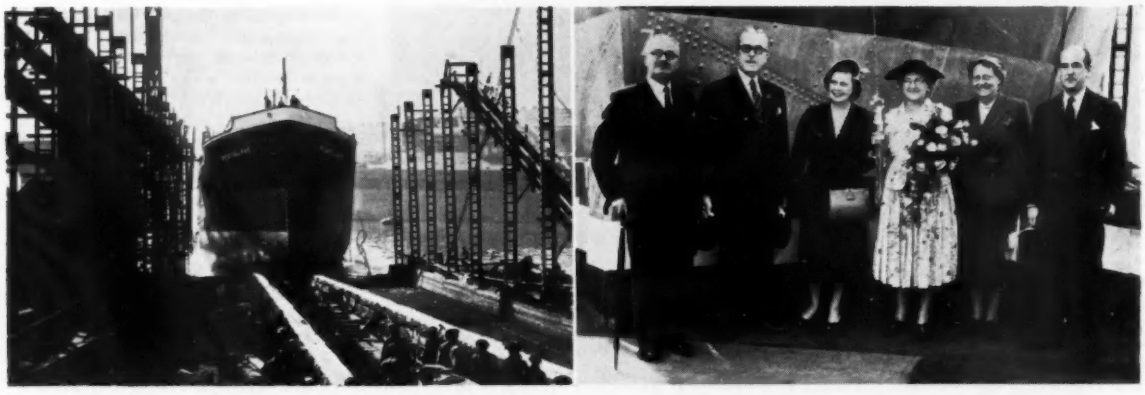
This system of utilizing propane and similar gases for the production of town gas has considerable advantages over previous systems such as air dilution since the specific gravity of the gas produced while being higher than that obtained by coal carbonization is in a range that can be normally handled by the existing distribution system.

Gaz de France is using this type of plant to a considerable extent particularly in isolated areas where gas supplied from traditional sources is uneconomic.

TABLE II. — Cost of Gas Production

Plant capacity mill. cu. ft. per day	Cost, pence per therm	Calorific value, B.Th.U. per cu. ft. 350	400	450	500	550
0.25M	At £20 per ton ..	12.83	12.46	12.19	11.99	11.81
	„ £22 per ton ..	13.91	13.51	13.26	13.04	12.83
	„ £24 per ton ..	14.99	14.59	14.32	14.10	13.90
	„ £26 per ton ..	16.09	15.70	15.40	15.16	14.97
0.50M	At £20 per ton ..	12.11	11.93	11.73	11.57	11.42
	„ £22 per ton ..	13.30	12.99	12.80	12.62	12.47
	„ £24 per ton ..	14.40	14.07	13.86	13.68	13.51
	„ £26 per ton ..	15.50	15.18	14.93	14.76	14.59
0.75M	At £20 per ton ..	11.96	11.70	11.52	11.38	11.25
	„ £22 per ton ..	13.03	12.77	12.59	12.44	12.29
	„ £24 per ton ..	14.12	13.83	13.65	13.50	13.35
	„ £26 per ton ..	15.22	14.94	14.72	14.57	14.41
1.0M	At £20 per ton ..	11.83	11.60	11.43	11.30	11.17
	„ £22 per ton ..	12.91	12.66	12.50	12.36	12.22
	„ £24 per ton ..	14.01	13.74	13.56	13.42	13.28
	„ £26 per ton ..	15.11	14.82	14.64	14.49	14.35

LAUNCH OF THE NEW MOTOR COLLIER 'PORTSLADE'



The 'Portslade' entering the water. The group in the right hand photograph comprises Mr. F. C. Asgill (Vice-Chairman of Stephenson Clarke, Ltd.); Mr. R. Prince (Chief Engineer, South Eastern Gas Board), Mrs. Croft; Mrs. Prince; Mrs. Asgill; and Mr. C. R. M. Croft (General Manager of the Sussex Division, South Eastern Gas Board).

A new motor collier was launched for Stephenson Clarke, Ltd., at the Sunderland yard of Austin & Pickersgill, Ltd., on July 6. The ship, the first of two being built to carry coal to the Portslade works of the South Eastern Gas Board, was named 'Portslade' by Mrs. Prince, wife of Mr. R. Prince, Chief Engineer of the Board. The ship will be driven by an eight-cylinder Clark Sulzer Type TD36 engine giving a service speed of 11 knots. Deck auxiliaries will be hydraulically operated and the latest navigational and radar equipment will be installed. Accommodation for the officers and crew will be of a very high standard. This collier will be the latest addition to the Stephenson Clarke fleet, which has carried coal to this station of the gas board, and its predecessors at Brighton, for more than 100 years. In addition to Mr. and Mrs. Prince, among those present at the launch were Mr. C. R. M. Croft, General Manager of the Sussex Division of the South Eastern Gas Board, and Mrs. Croft; Mr. F. C. Asgill, Vice-Chairman of Stephenson Clarke, and Mrs. Asgill, and Directors of Austin & Pickersgill, Ltd., and Clark Sulzer, Ltd.

At a dinner given in Newcastle following the launch there were also present Mr. Leslie Graham, Chairman of the Northern Division of the National Coal Board, and Mrs. Graham; Mr. C. A. Roberts, Secretary of the National Coal Board; Mr. Leslie Walker, Marketing Director of the Northern Division, and Mrs. Walker.

Instrumentation and the Gas Industry

PART 4

By A. LINFORD, B.Sc., A.M.I.C.E., and G. C. FARMER, Assoc.M.Inst.Gas E.

(Part 1 was published in the 'JOURNAL' of July 6, Part 2 on July 13, and Part 3 on July 20.)

THE use of large box purifiers, and particularly of tower purifiers, has led to the adoption of electrical methods for temperature measurement. A manually selected multi-point temperature indicator is usually employed which enables the plant operator to make periodic readings by operating the appropriate switch which connects the central tempera-

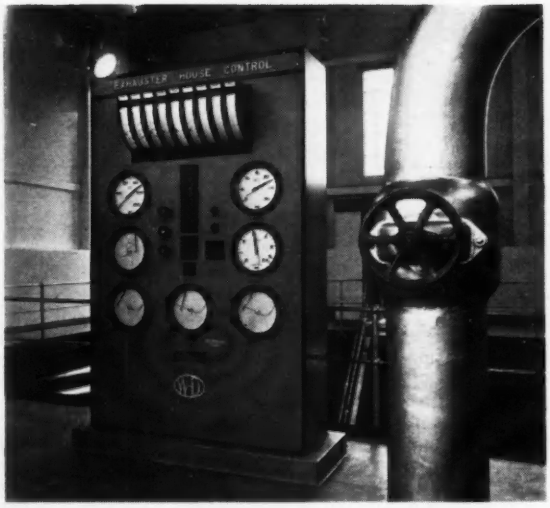


Fig. 21.—Exhauster house control panel.

ture indicating instrument to the thermocouple or resistance element located at the desired point of measurement. This system has the additional advantage over the mercury-in-glass form of thermometer originally used, in that the temperature detecting element can be located within the oxide layer.

Measurement of Air Flow

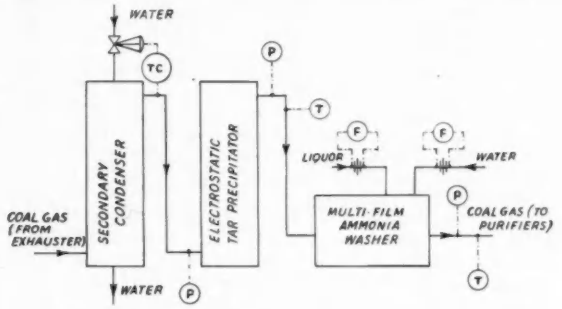
It has long been realized that the correct admission of air is the governing factor in the successful operation of the oxide process. The practice of air admission on the vacuum side of the exhauster is fast losing popularity, due to the undesirable oxidizing effects in the wet purification plant, and air is almost invariably admitted either at the first or second purifier box, centrifugal Roots blowers and Beal-type pumps being employed. The air is sometimes measured by means of an inferential form of 'mechanical' meter, but the modern practice is to utilize the differential pressure type of flow meter, consisting of an orifice plate or coned intake working in conjunction with a conventional form of flow registering instrument—*e.g.*, of the ring balance design, giving a record of air flow variations together with a counter reading of the total quantity of air admitted. Attention is drawn to the fact that air blowers sometimes set up objectionable flow and pressure pulsations which may result in inaccurate registration. The magnitude of the error may be large and may vary with plant loading. Therefore, when metering is contemplated, full details of the plant layout and technical particulars of the blowers should be submitted to the meter manufacturers for recommendations relating to the installation of the meter. The usual requirement is adequate capacity between the blower and the point where it is proposed to locate the meter. In general, it is easier to achieve accurate flow measurement if the meter is fitted on the inlet side of the blower.

The differential pressure form of flow meter is also widely used to give an indication of the gas flow as sub-divided into the various purifier streams. Its use renders it possible to manually adjust valves so that the load can be appropriately and accurately divided between the purifier sections. On smaller works, simple forms of manometers and diaphragm-operated indicators for measuring differential pressure are frequently employed for this purpose. The latter are robust in construction and easily read.

Automatic Control of Air Admission

The automatic control of air admission has become increasingly common on the larger works. One of the first and the simplest methods of air admission was to connect the impeller of the air blower to the shaft of the main exhauster; as the gas flow increases, so the rate of air admission is increased. Another approach to this problem is the adoption of the relay-type governor, which proportions the air admission to the purifier inlet by means of a differential pressure generated by an orifice plate situated in the purifier inlet main. The differential pressure generated, of course, is directly proportional to the square of the rate of gas flow.

Advanced forms of pneumatic control equipment have recently been applied to this problem and the method of operation here involves measurement of both the gas and air flows. A differential pressure meter, measuring the gas flow, is fitted with a pneumatic transmitter, the output air pressure of which is directly related to the rate of gas flow. This air pressure is applied to a pneumatic receiver contained in an air flow meter which is provided with a pneumatic controlling unit.



F. Flow measuring inst. P. Pressure measuring inst.
T. Temperature measuring inst. Tc. Automatic temperature controller.

Fig. 22.—Secondary condenser, tar precipitator, and ammonia washer instrumentation.

The function of the pneumatic receiver is to adjust the desired value reading of the air flow meter in accordance with signals fed to it—*i.e.*, in accordance with the instantaneous gas flow. The output air pressure from the controlling unit is applied to a regulator—*e.g.*, a valve, which adjusts the air flow so that the control point of the air flow meter, and consequently the air flow, bears some fixed relationship to the desired value, a constant gas flow/air flow ratio being maintained. Means

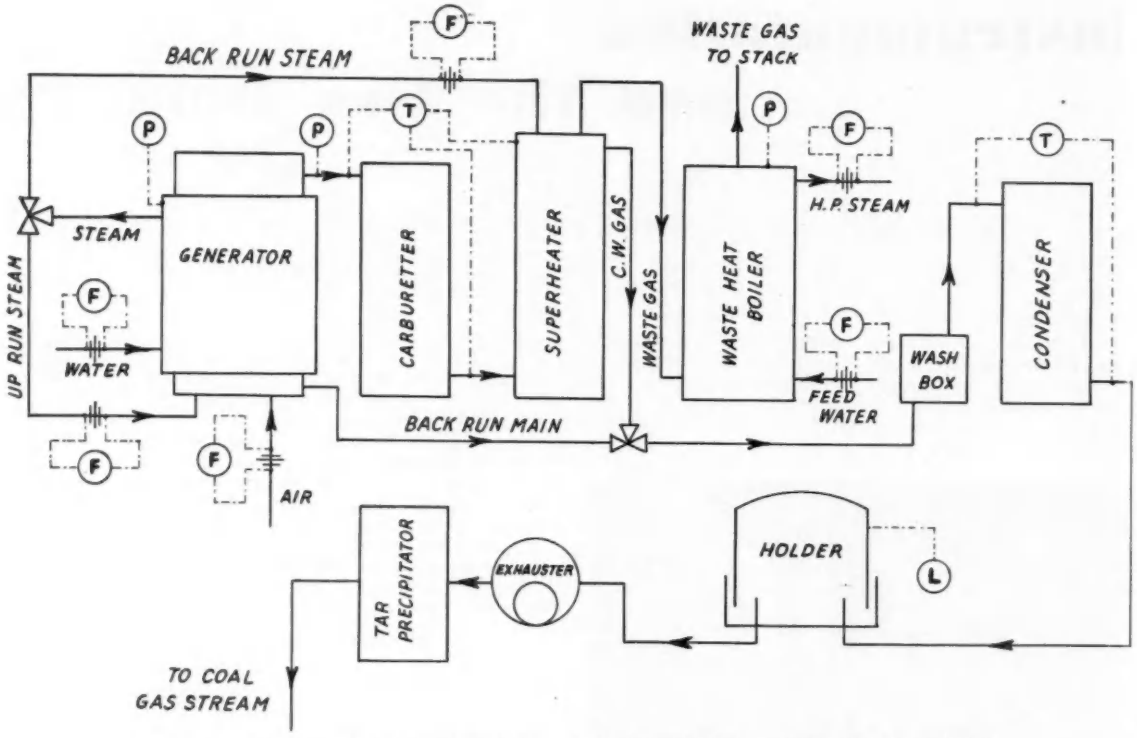


Fig. 23.—Carburetted water gas plant instrumentation.

are provided for manually adjusting the gas flow/air ratio so that the admission of air, expressed as a percentage of the gas flow, can be altered at will over a wide range in accordance with operational requirements.

Measurement of Percentage Oxygen

The introduction of instruments capable of giving a continuous record of oxygen percentage in gases described under heading 'Instrumentation of Waste Heat Boilers—Gas Analysis,' has opened up new possibilities for the chemical control of purifier plant. Much research work has yet to be done in the behaviour of various oxides under different conditions of air admission, and there is no doubt that a new lease of life for oxide purification methods will result from improved design, brought about by increased knowledge as a result of this work.

The oxygen 'slip' has, for many years, been considered an important factor in successful operation. L. A. Moignard in his paper (ref. No. G.C.7) entitled 'The Performance of Oxide Purifiers,' read before the Institution of Gas Engineers, in November, 1952, has stressed the great importance of the correct conditions of air admission and its relation to oxygen 'slip.' The automatic control of oxygen 'slip' by the regulation of air admission would probably be the ideal control circuit to be employed. Unfortunately, a direct approach to this problem is not possible on account of the long time lag involved in the oxide purifiers—the lag varies between twenty minutes and forty minutes—whereas the short-term disturbances due to changes in throughput, if unaccounted for, would completely over-ride the changes in oxygen percentage due to change in oxide activity. It would appear that the approach to this problem will have to be the control of air admission on a proportional basis, as described in the foregoing, with some means of adjusting the gas/air ratio by signals from a percentage oxygen measuring instrument. It is possible that such equipment will be justified when the full implications are known.

STATION METERS

The term 'station meter' is a legacy from the days when the total gasmaking output from gasworks could be measured on one meter. It was a comparison of the readings obtained on this meter with the total consumption of all the consumers' meters of the gas undertaking which determined the function so important to the successful operation of the gas undertaking—the unaccounted-for gas.

It is interesting to note that it is only within the last decade that many works have adopted the practice of correcting their station meter readings to standard conditions of temperature and pressure. In the past it was assumed, no doubt with some logic, that since it was impossible to correct the readings of every consumer's meter, an incorrect figure in both cases was satisfactory.

However, the second and more important function of the station meter is to determine the efficiency of the gasmaking plant concerned; at the present time it is usual to use one station meter for every section of oxide purifier boxes.

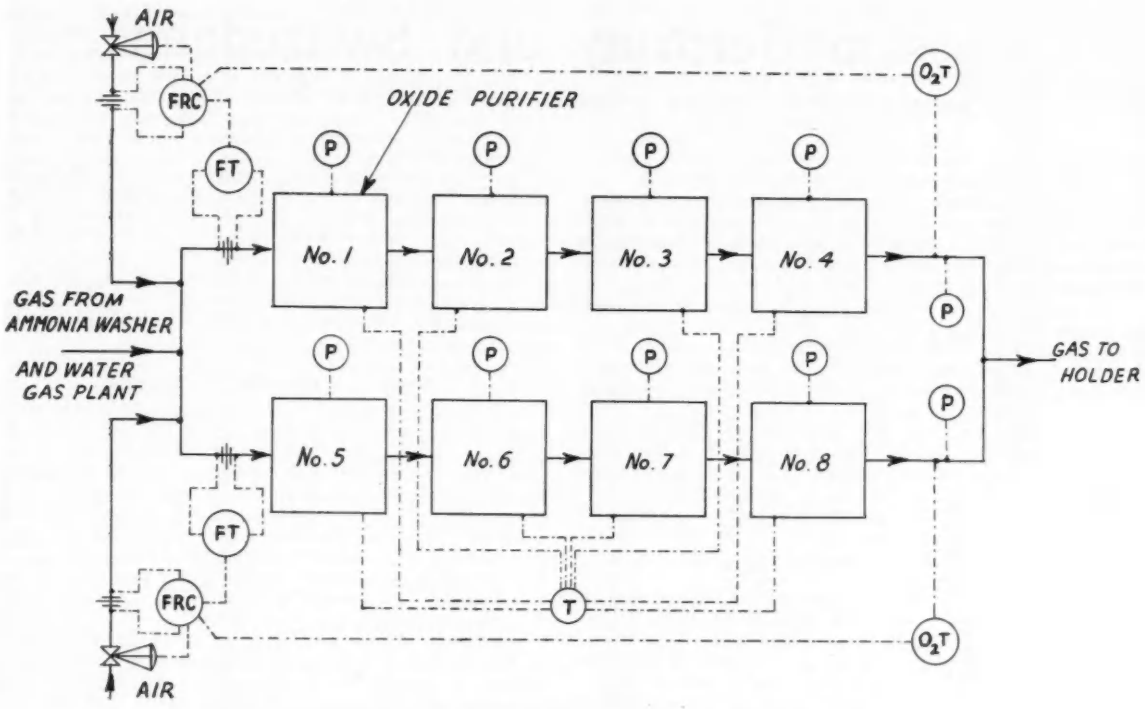
Station meters may be divided into three main types—the wet meter, the Roots type meter, and a group of meters operating on various inferential principles, including that of differential pressure.

Wet Type Gas Meters

One form of wet station meter in essence consists of a drum revolving within a cylindrical tank approximately two-thirds filled with water. The drum consists of a shaft carrying three or four partitions, arranged in spiral form, these partitions emerging in turn from the water as the drum revolves. Each partition forms, with the water, a water sealed compartment which alternatively receives and delivers gas. The drum derives its motion from the pressure of the gas itself exerted upon its surface.

A syphon overflow system is employed to ensure that a constant water level is maintained, water being continually added to the meter. This feature is of paramount importance, since variations in water level inside the meter, occurring as they do at the area of maximum cross section of each chamber, have a considerable influence on the accuracy of the measurement. For operating the counter mechanism, the rotation of the drum shaft is transmitted to the exterior of the meter body through a stuffing box.

In common with all meters employing a displacement principle, the actual volume passed is always correctly registered irrespective of density, and not the volume reduced to S.T.P.



P. Pressure measuring inst. T. Temperature measuring inst. O_2T. Oxygen transmitting inst.
FT. Flow transmitting inst. FRC. Automatic flow ratio controller.

Fig. 24.—Oxide purifier instrumentation.

Another form of wet type meter employs a nutating bell principle, the construction being on the lines indicated diagrammatically in Fig. 25. The gas entering the liquid sealed chamber is conveyed to the space under the bell, and passes through three compartments in succession. The lower edges of the dividing walls of the compartment dip into and rise out

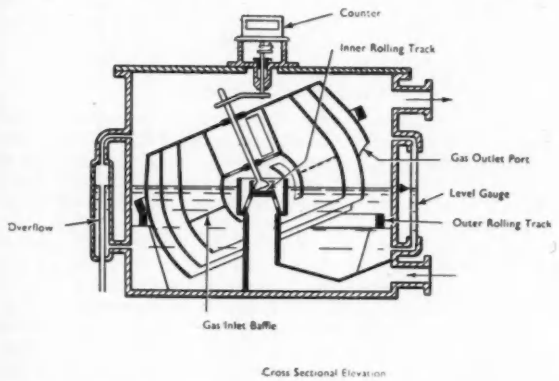


Fig. 25.—Nutating bell type wet meter for gas measurement.

of the sealing liquid as the bell is displaced by the pressure of the gas, which on being released from the underside of the bell, passes into the top of the chamber and from there to the meter outlet.

The gas flowing through the meter imparts a nutating (swash-plate) movement to the bell, the outer rim of the bell rolling on a circular track. The movement is similar to that of a shallow cone rolling on its apex in a horizontal plane, but it should be noted tht the bell itself does not rotate.

As in the case of the wet type meter previously described, the accuracy of the meter is dependent on level of the sealing liquid remaining constant.

These meters are very large in size for any given throughput and involve very considerable sheet metal work in their construction. For this reason they have been losing their popularity during the last few years.

(To be continued.)

COAL MARKET 'TIGHTENS AGAIN'

The present tightness in the European coal market is expected to continue in the July-September quarter it was revealed during a series of Economic Commission for Europe (E.C.E.) coal meetings just concluded in Geneva. A detailed review of the situation showed that on the basis of present plans coke output will fall short of requirements by about half a million tons during the quarter. The amount is evenly divided between coke oven and gas coke, and the shortages appear to arise with respect to importing countries, being concentrated on those not members of the European Coal and Steel Community. A further indication of the extent of solid fuel shortage in Europe is suggested by the level of imports by European countries of American coal. European countries (not including Yugoslavia) imported 1,614,000 metric tons of coal from the U.S. in May, 1955, compared with 712,000 tons in May, 1954. The level of solid fuel imports for these countries from America in the period June, 1954-May, 1955, was 11,934,000 tons, against 6,940,000 tons during the same period the year previous.

The heavy demand for coke appears to arise primarily from the continuing increase in requirements for the iron and steel industry, but also because there is an increase in demand for coke for domestic purposes. Europe's resources of traditional coking coals, while still important, are exhausting themselves and there is, therefore, an imperative reason for economizing on these coals. The E.C.E. Coal Committee's Utilization Working Party, endeavouring to promote this economy and to increase supplies of coke, devoted much of its attention to the rational utilization of European coal availabilities for carbonization purpose.

[The E.C.E. Secretariat has published a bibliographical index on the efficient use of fuels. It covers publications from Western Europe, the U.S.A., and the U.S.S.R. The index is priced at 1s. 9d. and may be ordered from H.M. Stationery Office, P.O. Box 569, London, S.E.1.]

Gas in Germany and Switzerland

Abstracts from the German and Swiss Gas Press

R. SCHICK, in *Gas und Wasserfach*, March 1, 1955, describes the new coke oven plant designed and constructed by Carl Still of Recklinghausen at the Augsburg gasworks where more capacity was needed to meet the increase in gas consumption, particularly by industrial users, in an extended district of supply served by a new gas grid.

The new installation, which replaces vertical retort plant, is planned for an eventual daily carbonization of 1,000 tons of coal. The first instalment consists of two benches of 10 and 15 ovens respectively separated by an intermediate division wall. The ovens are 10 m. (32 ft. 10 in.) long, averaging 15 in. in width by 13 ft. 1½ in. in depth, to contain about 11 tons of coal per charge at a depth of 12 ft. 2 in. Heating is on the compound regenerative system with multi-stage combustion, in which producer gas and air for combustion are separately fed through pre-heaters in chequered brickwork to four burners equally spaced vertically in the combustion chambers, providing combustion points at four different levels. Alternative arrangements are provided for coal gas firing at similar levels.

An interesting detail in the equipment of the ovens is the double seal doors in which the usual metal-to-metal contact is replaced by an elastic graphite-asbestos gasket on the outside, which is pressed against the door frames by screws to form the gas seal. The gaskets have been found to have a useful life of from 18 months to two years. Expansion and contraction of the oven brickwork is taken care of by elastic tie-rods.

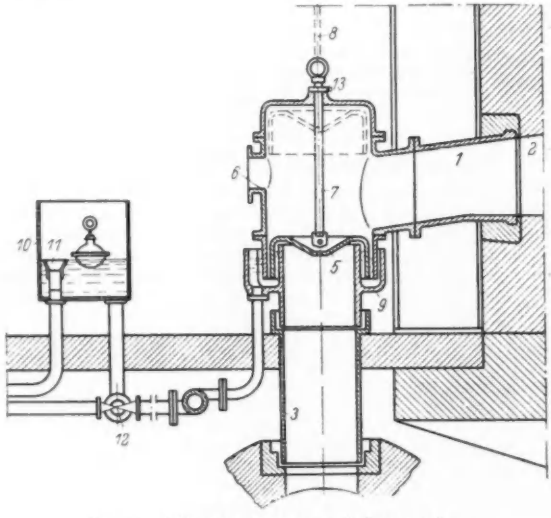


Fig. 1. Still patent water-sealed gas valve.

1. *Pipe*
2. *Regenerator bottom passage*
3. *Pipe*
4. *Waste heat passage*
5. *Valve head*
6. *Firing gas outlet*
7. *Valve spindle*
8. *Draw chain*
9. *Sealing cups*
10. *Water tank*
11. *Overflow*
12. *Stopcock*

Another important feature is the Still patent water-sealed gas valve (Fig. 1), instead of the usual metal-to-metal face. It has been found possible to keep the temperature of the water in the cups low, 50-70°C., so that water consumption is very low.

These features, it is claimed, ensure that pure coal gas is supplied from the oven without contamination by fuel gases or products of combustion. In the acceptance test the gas produced was of very high quality, averaging a calorific value of 5,613 Kcal/m³, O°C., 760 mm., dry (588 B.Th.U. per cu.ft, 60° F., 30 in. saturated) with 4.5% unsaturated hydrocarbons and 30% methane. Such a gas permits considerable dilution to the calorific value of 4,200 Kcal/m³ (440 B.Th.U. per cu.ft.) as required for distribution to the district.

The plant is complete with coal handling, mixing and grinding facilities for blending, coke handling machinery with a coke quenching ramp and conveyor to the previously existing coke screening plant.

Repair to a Gasholder in Operation

A. Nielsen, in *Bau und Betrieb*, January, 1955, describes an emergency repair to the leaking cup of the second lift of a gasholder at Kiel. The holder is of 50,000m³ (say 1¾ mill. cu.ft.) capacity and is supplying about 60% of the demand. For this reason it was desirable not to put the holder out of commission for any considerable length of time while the necessary repair was effected. By careful preparatory work and planning of the actual operation it was found possible to limit the time of restricted supply to five days, during only one of which the gasholder was completely out of action but never entirely empty.

The month of June, being the period of minimum demand, as well as that of least inconvenience due to interruption of supply, was selected for the operation. And the distributing system was forced up to maximum capacity beforehand, to compensate as far as possible.

The leak was located by acoustic means. The first lift was raised and chains attached to it from the second (damaged) lift. The second lift was then raised, by pumping up the first lift, until struts could be placed under its roller guide brackets to support it from the edge of the third lift. The first lift (or central bell) thus became available for furnishing a continued, though restricted, supply of gas.

Meanwhile the leak was uncovered and all preparations made for the repair, including the cutting of access holes in the rim of the next lift. The top lift was now immobilized (the only time when supply was completely interrupted) and the leak repaired by welding. The bell was then used to raise the second lift off the struts and the gasholder restored to working order.

Cleaning of Gas Mains

W. Preiss in the same issue of *Bau und Betrieb* describes and discusses the use of suction pumps, ranging from small, portable pumps to heavy, motorized units, for cleaning gas piping and mains, from service pipes to street mains and trunk supply mains. Suitable and available equipment and problems associated with its use are briefly surveyed.

The necessity for great care in these operations is stressed and the employment of trained personnel is advocated. There should be sufficient pressure in pipes under treatment, and the use of a recording pressure gauge is recommended. Consumers on the same network should be warned. The reactions on other parts of the system and the precautions to be taken with regard to possible effects on other gas points are indicated and discussed. Accretions and incrustations should first be removed mechanically. Suction should be at the lowest possible vacuum which is sufficient for the purpose.

The author is of the opinion that suction cleaning should be a regular routine in the maintenance of all gas mains and distributing systems; apart from its direct necessity, it affords the opportunity for a useful running check on the condition and general efficiency of the system, resulting in less repair work with such attendant inconvenience as interruption of street traffic.

Dual-gas Plant

R. Kaliwoda in *Gas-Wasser-Wärme*, February, 1955, describes the 'dual-gas plant' installed at the St. Pölten gasworks to replace earlier coal gas and producer-oil-gas plant. The new plant is designed to generate carburetted producer gas made from local (Austrian) lignite using heavy oil. The

works supplies a town of some 50,000 inhabitants and the surrounding district.

The apparatus, shown diagrammatically in Fig. 2, consists of a rotary-grate mechanical producer, with automatic feed and ash discharge, designed for running on lignite, followed by a cyclone dust separator, superheater, carburetter and waste-heat boiler. Steam generated in the producer water-jacket passes to the steam receiver. Steam from the superheater passes through a combined automatically controlled regulating valve which admits either steam or secondary air to the producer. The producer is operated on an alternating 'blow/steam' cycle.

All controls are hydraulically operated and instruments are centralized on a panel which also carries the necessary warning devices. The chemistry and economics of the process are discussed in some detail. It is hoped that the installation may be the solution of the problem of utilization of indigenous materials for the production of town gas, with obvious economic advantages.

Th. Lehmann, in *Gaswärme*, February, 1955, discusses the new specifications together with the general trend of gas cooker design in the light of consumers' preferences. Tendency is definitely towards higher technical development with increased automaticity, thermostatic control and time switches, as well as increased safety by way of pilot flame guards and tap shields.

Some current types are illustrated and discussed. There are high and low models but pedestal designs are out of favour. Special types are those with a centralized pilot-flame ignition, cookers adapted for auxiliary space-heating and the so-called 'American' model with large oven-space. These trends are influenced by the part-time employment of some housewives and by a tendency to cook more in the oven and less on the boiling ring.

Methane in Heavy Industry

A. Vacek, in the January issue of *Gas-Wasser-Wärme*, investigating the combustion of methane in comparison with other industrial gases, points to the false impression given by its relatively high calorific value, say 8,550 cal/m³ (961 B.Th.U. per cu.ft.). Methane, however, requires a high combustion air ratio (11:1) and thus produces a large volume of combustion products which tend to reduce its economy in industrial uses. Further, carbon dissociation is liable to take place, as shown by the luminosity of the methane flame, with attendant risk of sooting.

The author discusses the several sources of methane (including the Lurgi synthesis gas) and concludes that only the cheap natural gas should be used as a methane substitute for the ordinary industrial gases—producer gas or coke oven gas. The possibilities of dilution with blast furnace or other low grade gases are briefly discussed.

He describes an 80-ton capacity open hearth furnace arranged for natural gas firing. Preheating of the gas was not

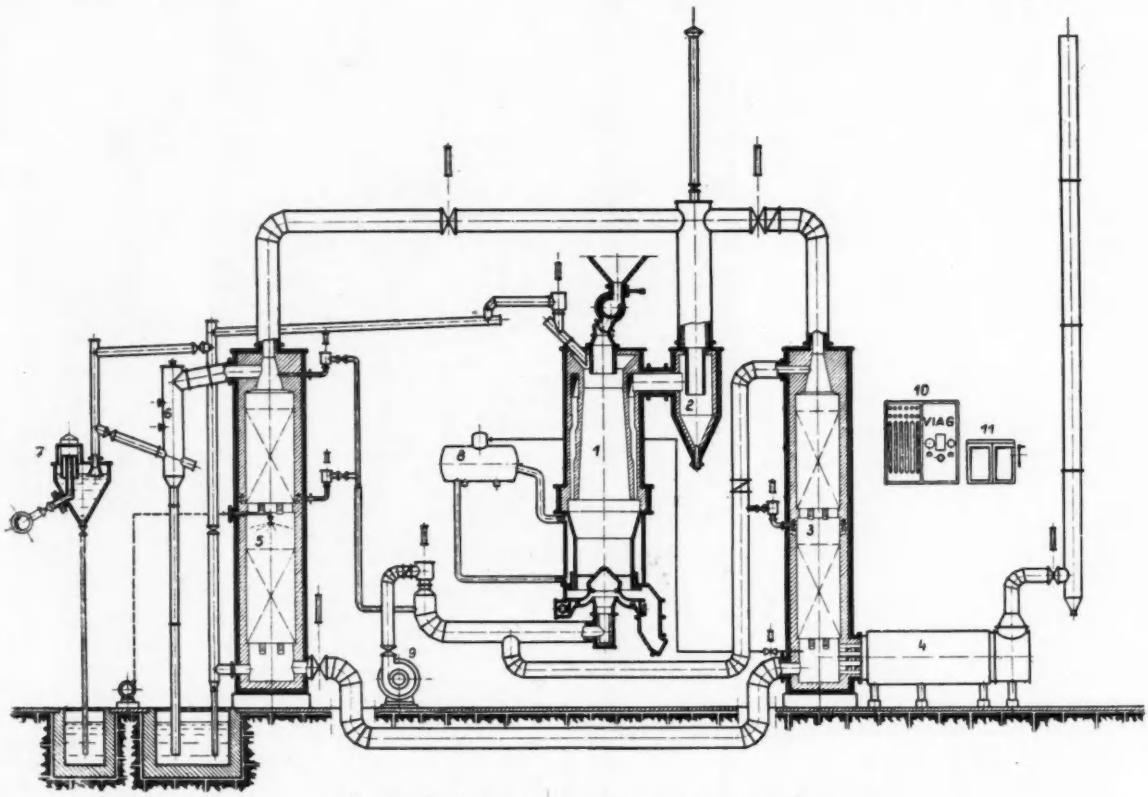


Fig. 2. Dual-gas plant at the St. Pölten gasworks.

1. *Producer*
2. *Cyclone separator*
3. *Superheater*
4. *Waste heat boiler*
5. *Carburetter*
6. *Cooling pipe*
7. *Hydraulic main*
8. *Steam receiver*
9. *Fan*
10. *Instrument board*
11. *Automatic controller*

Standardization of Cookers

Two new DIN standard specifications are shortly to be issued: No. 3360 relates to cookers for town gas and 3366 for bottled gas. The first is to be a definitive standard, while the second, in which the experience and results with the first are embodied, is to be published as a tentative standard.

The new specifications are directed to high technical quality, a reduction in the number of types and models and the standardization of a number of dimensions, such as minimum burner spacing and working heights. For the latter, two dimensions from floor to working level are standardized; 800 mm. (31½ in.) which was that originally recommended, and 850 mm. (33½ in.) which is the recently introduced standard for the height of kitchen tables, draining boards, etc. Three standard oven widths are specified: these are 330, 360 and 400 mm. (corresponding to 13 in., 14¼ in., and 15¾ in.).

used, since this tends to promote carbon dissociation. Instead, only the air for combustion was preheated. The methane was introduced at three successive points in the flow of preheated air, mixing with primary and secondary air immediately behind the burner. Combustion was complete and smokeless and the flame non-luminous. This was, at first, found to be a drawback since the operators, accustomed to the use of producer gas, failed to control the combustion accurately, with consequent overheating of the hearth and delayed combustion, resulting in nearly 60% increase in fuel consumption. Results improved as furnace operators learned to watch their instruments rather than the appearance of the flame.

Self-carburizing was effected by introducing the third supply of methane at the correct point, reducing fuel consumption to only about 10% above that with producer gas, at which point in view of the low cost of natural gas, it was accepted. Preheating, roll-heating and annealing furnaces gave slightly better results.

B.G.S.A.'s NEW HEADQUARTERS

THE new national headquarters of the British Gas Staff Association at 34, Gloucester Gardens, Paddington, were formally opened on July 22 by the Mayor of Paddington, Councillor Miss Catherine P. Rabagliati, M.B.E., J.P. Established in 1946, the Association had its headquarters in a suite of offices at Knightsbridge until last March, when the premises were required for demolition. The Paddington offices are in an area that was badly bombed during the war, and although much of the original structure has been preserved the building has been extensively rebuilt and modernized. The house comprises a spacious general office and separate offices for the General Secretary, National Organizer, Area Organizer, and Financial Officer, with a conference room large enough to accommodate meetings of the National Council. There is also an additional suite of offices which will be sub-let, and accommodation for the resident caretaker. Modern gas fires have been installed in all the rooms, and hot water is also provided by gas.

MR. W. E. WEBB, J.P., Chairman of the Association, presiding at the opening ceremony, recalled that the B.G.S.A. was formed by the amalgamation of two existing associations that had been in operation for two years. It started with little in the way of funds and with no headquarters. Most of the work was done voluntarily, as indeed much of it was still done today, and they owed a great debt to all those officers, both national and local, who had by their loyalty made the Association what it was today. It was established with the national set-up of the gas industry in mind, and while its pioneers had no political bias they recognized that the Government of the day meant what they said, and they succeeded in securing several major alterations affecting staffs while the Gas Act of 1948 was going through its various stages in Parliament.

The Association now participated in national, area, and local machinery for joint consultation and negotiation, which dealt with salaries, conditions of service, and other matters affecting the welfare of gas staffs. In calling on the Mayor to declare the premises open, Mr. Webb warmly welcomed Mr. B. Parkin, M.P., for North Paddington; Mr. Michael Milne-Watson, Chairman of the North Thames Gas Board; Mr. D. L. Hill, Assistant Industrial Relations Officer, Gas Council; Colonel R. N. Bruce, Staff Controller, North Thames Gas Board, Mr. R. J. McCrae, Personnel Manager, South Eastern Gas Board; and Mr. J. H. C. Bates, Industrial Relations Officer, Eastern Gas Board.

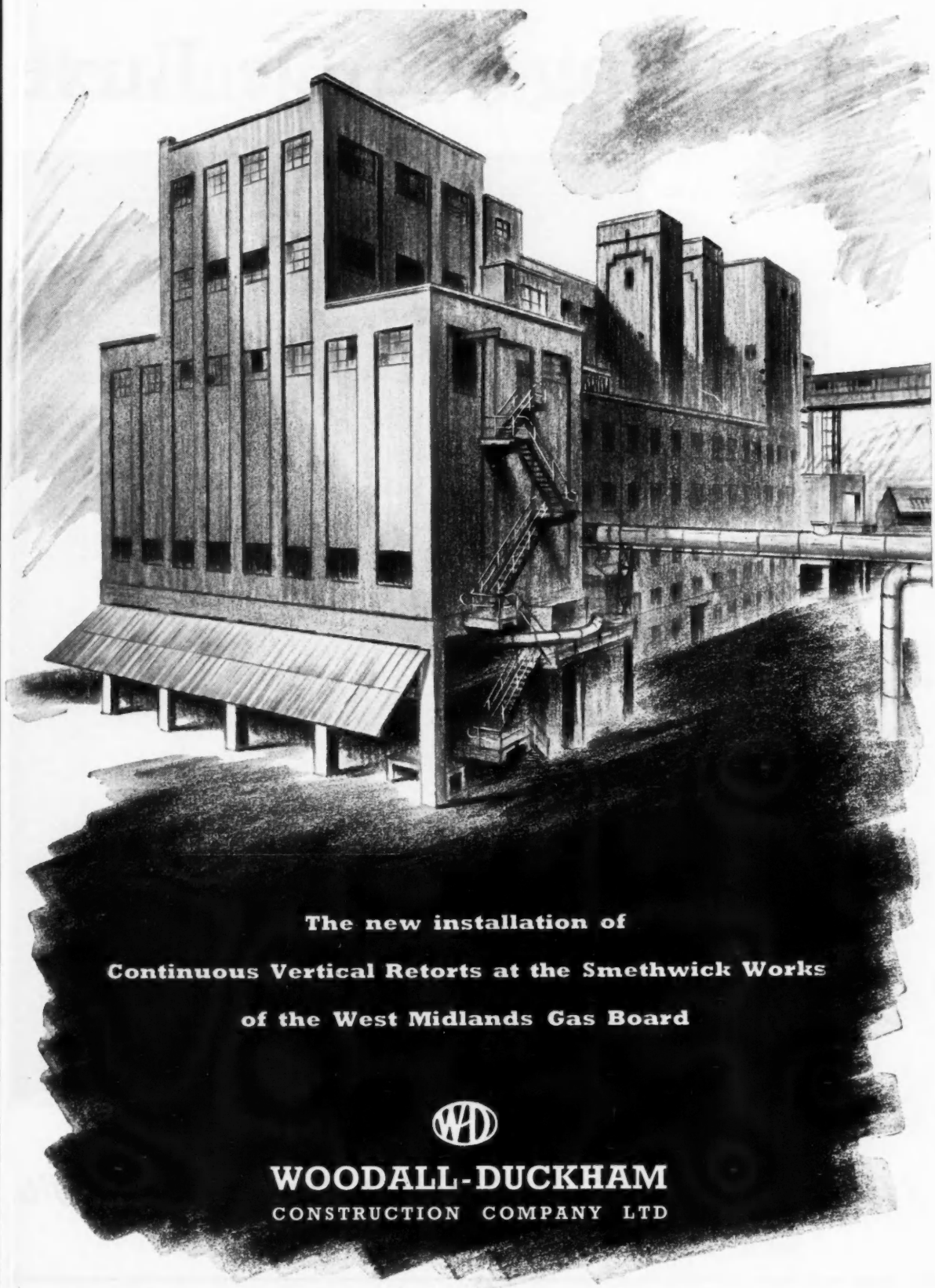
The new headquarters of the British Gas Staff Association on the corner of Bishops Bridge Road and Gloucester Terrace, Paddington.

The MAYOR OF PADDINGTON, in unveiling a tablet to commemorate the occasion, welcomed the Association to Paddington, the home of many famous men, and recalled that the premises were once Kensington College, a famous educational establishment for young ladies.

MR. MICHAEL MILNE-WATSON said he was the only member of the Gas Council present, and he had been asked to convey the good wishes of the Chairman, Sir Harold Smith, who was in Belgium on business, and of the Deputy Chairman, Mr. Henry F. H. Jones, Sir John Stephenson, Mr. W. K. Hutchison, and other members. He said he was most impressed with the new headquarters, and had great admiration for the leading lights of the Association. Mr. Webb was an old friend and colleague of his, both in the Gas Light and Coke Company and the North Thames Gas Board, and the fact that he was a former Mayor of Heston and Isleworth was some indication of his energy and public spirit. He also had a great regard for Mr. H. J. Arnold, the National Organizer, and Mr. F. C. Henfrey-Smith, the General Secretary of the Association. The B.G.S.A. had grown to a family of 18,000 members in 170 branches, and he wished it every success in its future activities.

MR. B. PARKIN, M.P., expressed his great admiration for the relations between the trade unions and the nationalised gas industry, which appeared to be free from that tendency to political controversy that sometimes emerged from trade unions. 'I am astounded at the spirit of friendliness and the co-operation at all levels in the organization of the North Thames Gas Board', he added. The attitude of the Board and its staff towards the consumer was really striking, particularly to anyone who met with it for the first time.

After the ceremony the visitors inspected the premises and remained for tea.



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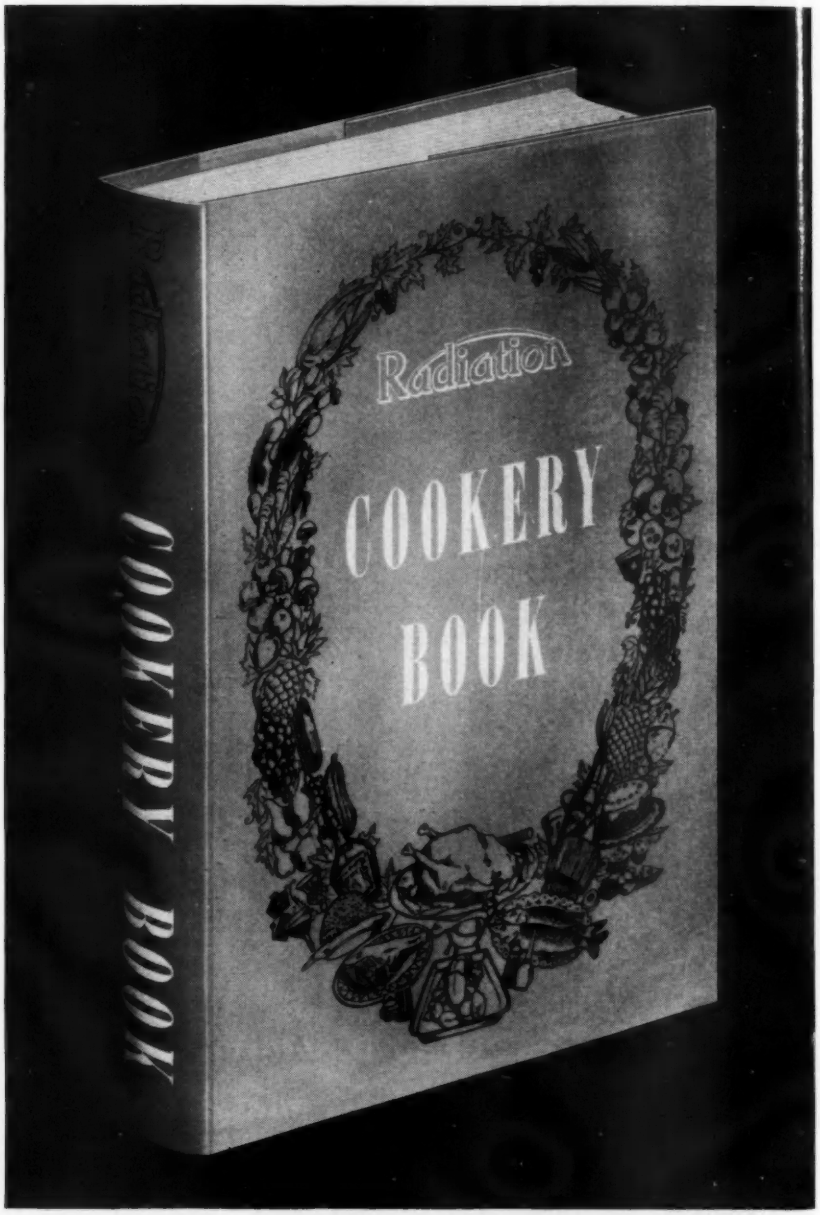

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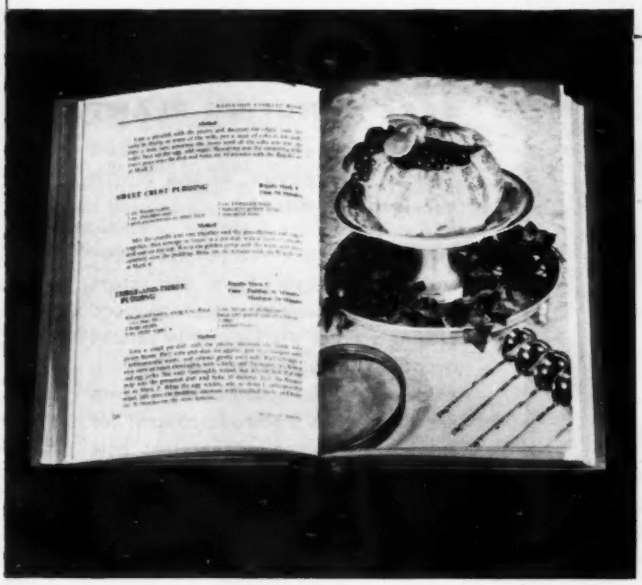

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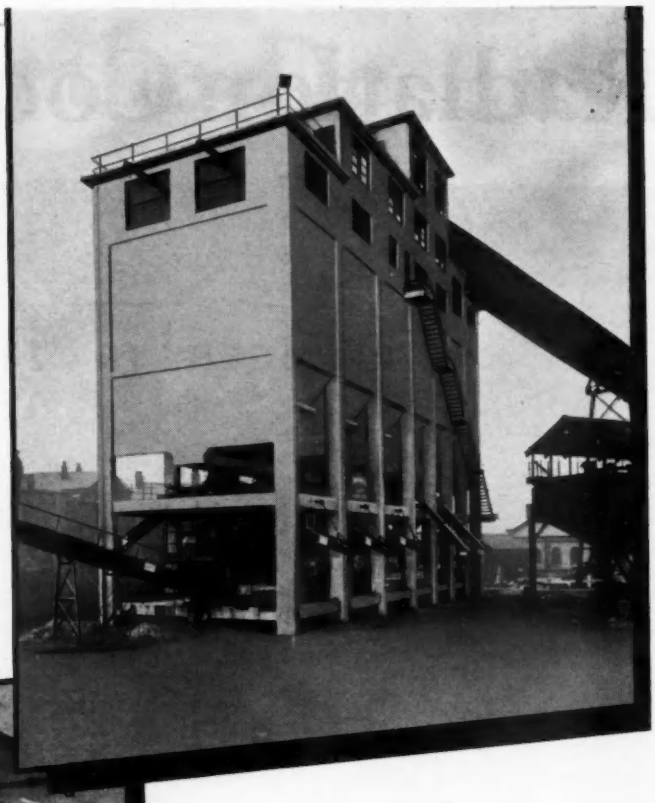

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installed at the Bradford Road Works, Manchester, of the North Western Gas Board.

This modern plant incorporates feeder and belt conveyors from the retort house. Scalping screens, coke cutters and grading screens are located in parallel over 850 tons capacity storage bunkers. Below the bunkers debreezing screens are fitted with electrode control for automatic weighing and bagging; bulk loading arrangements on opposite side. A separate loading hopper is provided for breeze.

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South Western Gas Board's Historic Milestone

Sir Harold Smith, with spanner in hand, ready to bolt up the last length of the first 1,000 miles of main laid by the South Western Gas Board since vesting day. With him are Lady Smith and Mr. and Mrs. C. H. Chester.

GAS history was made 700 ft. above sea level in the Mendip Hills on July 19, when Sir Harold Smith, Chairman of the Gas Council, laid the last length of the 1,000th mile of new gas main constructed by the South Western Gas Board since vesting date. The link was made alongside the old Roman road known as the Old Foss Way, Beacon Hill, now in places little more than a cart track, a few yards from the point where it joins the main Wells-Frome road between Midsomer Norton and Shepton Mallet, Somerset. It forms part of a 12 in. high pressure main which connects Bath with Chard and will ultimately link up with Exeter, Torquay, Plymouth, and Penzance.

Of the 12 area boards only one has a larger area of supply and only two have a lower density of population than the South Western. In 1949, the gas industry in what is now the South Western area comprised 103 separate autonomous bodies operating 107 gasworks with a total output of 25,500 mill. cu.ft. of gas per annum; this total output comprised individual outputs ranging from as little as 2 mill. cu.ft. to a maximum of 5,900 mill. cu.ft. per annum. Since vesting day, the policy of the Board has been to avoid heavy expenditure on the small and relatively uneconomic gas producing works and to concentrate all the technical skill on the planning of large new works which, together with existing modern plant, will be able to supply the entire area.

Apart from the network of mains radiating from each major manufacturing centre, each centre is, or eventually will be, connected with its neighbour in order that full advantage can be taken of the base loading of selected works. This means that the gas grid when completed will be continuous from Evesham in Worcestershire to Penzance in Cornwall and will be, probably, the longest grid in the country. The integration scheme is expected to be completed by 1960 when the entire area of 8,400 sq. miles will be supplied with gas through interconnected mains from 16 major manufacturing stations.

As new gas producing plants come into operation and high pressure mains are laid and linked, the smaller works are closed down and bulk supplies afforded through these high pressure mains.

Since May 1, 1949, 45 smaller works have been closed and a further 15 will be closed by March, 1956. The 21 works closed in the 1954/55 year represent a combined annual output of over 5 mill. therms. The major works in this scheme is at Stapleton Road, Bristol. When in full production the Stapleton Road works will have an output of 16 mill. cu.ft. per day. New works at Exeter will have an output of 6 mill. cu.ft. per day when in production next year and will provide the additional gas required for the closing down of several smaller works to which bulk supply mains are now being laid. Additional carbonizing plant at Keyham works, Plymouth, has been completed, and in South Cornwall it is planned to close all existing works, with the exception of Penzance and Newquay, and to supply the bulk of the area from the new plant now being built at Lower Newham, Truro.

Additionally, the Board is to install new plant at the Gloucester works which is in a strategic position as far as gas distribution is concerned. This new plant will produce a rich gas from heavy oil; another type of plant will gasify a large range of oils, while the third plant will provide for the complete gasification of non-coking coal, producing about 190 therms of gas for each ton of coal carbonized.

Major ancillary plant has been and is being installed in existing works and the overall total of improved efficiency from the new plant already in operation and the improved technical control of existing plant is now resulting in an extra 2.34 therms of gas and 0.67 cwt. of coke and breeze for every ton of coal carbonized—which is equivalent to a saving of £310,000 per annum.

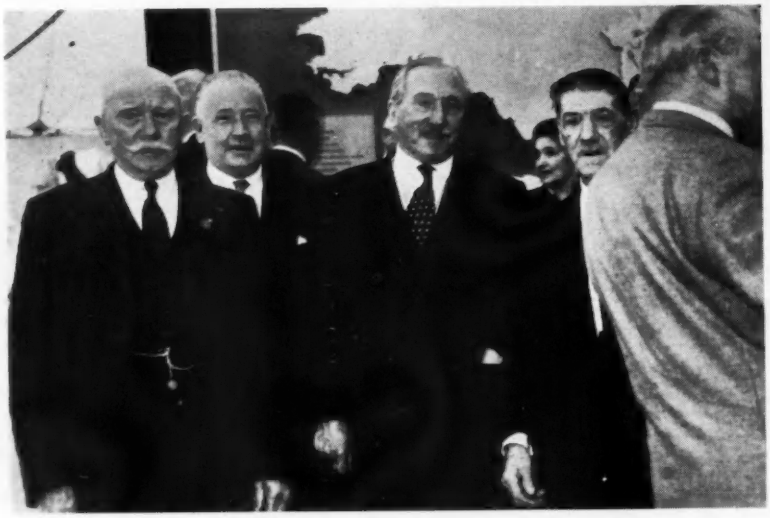
Part of the total of 1,000 miles of main laid since 1949 has been devoted to improving supplies around the main centres of population, but several hundreds of miles have been added to the grid.

The final length of 12 in. pipe was laid by Sir Harold Smith in the presence of Mr. C. H. Chester, C.B.E., Chairman of the South Western Gas Board, civic dig-

nitaries and public personalities from the adjoining areas, and officials of the Board.

Mr. Chester presented Sir Harold Smith with a silver spanner bearing a suitable inscription to commemorate the occasion, and mentioned how glad he and the Board were to have the goodwill of the landowners in the area and their co-operation in facilitating wayleaves where the main passes through private property was most helpful. While he did not think that either owners or tenants would grow very fat on the compensatory payments, he readily acknowledged their sense of public spirit and responsibility which enabled the modern amenity of a good gas supply to be enjoyed by many others far more quickly and more cheaply than would otherwise be the case.

Sir Harold stepped into the trench and with the touch of the expert mainlayer tightened up the two final bolts of the joint and declared the main duly completed.



Mr. F. Bridgwater (Bristol), retired mainlayer with 50 years of service, Mr. C. H. Chester, Chairman of the South Western Board, Sir Harold Smith, Chairman of the Gas Council, and Mr. S. G. Musgrove, who served as mainlayer for 38 years.

As a small measure of appreciation of the work accomplished by the main laying staff the Board invited Mr. Frank Bridgwater, of Bristol, and Mr. Sydney George Musgrove, of Taunton, to participate in the ceremony. Mr. Bridgwater, who is 71 years of age, recently retired after 50 years of service. During the major part of his long service he was a mainlayer of outstanding ability and in 1947 was appointed Head Mainlayer in recognition of his capabilities. For his service to the gas industry he was awarded the B.E.M. in the 1951 New Year Honours list. Mr. Musgrove, who retired in 1952, is 74 years of age. He commenced work with the Taunton Gas Company in January, 1914, and in his 38 years of service was employed as a stoker and later as a main and service layer.

Following the pipe laying ceremony the guests were entertained to luncheon in a marquee in an adjoining field. A temporary gas and water supply had been laid on to another marquee close by, enabling the caterers to serve a first class meal under ideal conditions.

ALDERMAN F. H. F. CALWAY, D.L., Chairman of the Somerset County Council, proposing the toast of the gas industry, said the relationships between the local authorities and the gas industry in the South West were very cordial despite an occasional grouse from the county and local surveyors concerning the breaking up of the carriageways. Although he had to confess that he lived a mile from the nearest gas main and had not used gas in his home for many years he was interested in the research work being carried out by the industry in its quest for more economical sources of gas supplies and he was confident that one or another of its lines of exploration would bear fruit.

SIR HAROLD SMITH, responding, thanked Mr. Chester for giving him the opportunity of once again laying a gas main, and for the gift of the silver spanner. He was very pleased to see the difference in working conditions now existing compared with those that existed when he was engaged in laying mains. The completion of the 1,000 miles of main in the South West since vesting date was a tremendous achievement and was all part of a scheme which he was sure the Chairman would not mind him saying originated in the mind of the Chairman. When the South Western Gas Board was formed it was extremely fortunate in having Mr. Chester as Chairman, because he had had considerable experience in doing on a smaller scale what had since been done over a very much larger area. He had realized that the only way to make a success of that sparsely inhabited area was as quickly as possible to integrate the various undertakings and shut down those that had not been working efficiently and in the course of time to supply gas over the whole area from a small number of highly efficient gasworks. As would be seen from the maps displayed during the ceremony it was hoped by 1960 that the whole area would be served by 16 gasworks as against the 107 that were in existence in 1949.

This was going to mean a considerable saving in coal through increased efficiency of working, and it was going to mean increased economy. That sort of thing was going on throughout the gas industry in Britain today. The extent to which it went on in each area depended on the state of the industry when it was nationalised. If they could have continued to purchase coal today at the prices obtaining in 1949 the price of gas would not have gone up; it would have gone down considerably. Enormous economies had been made in working both in the South West and in the other areas in Britain, but the continued increases in the price of coal had been more than they could absorb by increased efficiency.

The latest increase in the price of coal immediately put £17½ mill. on to the gas industry's annual coal bill, and that was on top of the £30 mill. per annum by which the coal bill had been increased in the last six years. They were continuing research into different methods of carbonizing different kinds of coal, into the use of methane which they collected from the coal mines, gasifying different groups of oil by different types of process—and at Gloucester a new type of gasification plant was being introduced into this country by the South Western Gas Board. They were continuing their research into two more types of plant which would gasify oil, one at high temperature and the other at high pressure, and they were searching for natural gas and exploring the possibilities of importing liquid methane gas.

They were told that their competitors were going to develop electricity by using atomic power, and by so doing they were going to use much less coal, but no-one had yet suggested that the use of atomic power was going to mean cheaper electricity. The value of the power would depend largely on what the Government was prepared to pay for the plutonium employed, and there seemed to be no hope of cheaper electricity, although the scheme might prove to be a coal saver. The gas industry would do its coal saving by using oil and probably by using natural gas and importing it, and in whatever direction it met with success it would mean cheaper gas.

MR. C. H. CHESTER proposed the toast of the guests and referred particularly to the presence of the two old mainlayers who had served the gas industry in the South West faithfully and well for periods of 50 and 38 years respectively. Personally he could not yet claim 40 years, but Sir Harold had served the industry for over 40 years, and it was such long service that was one reason for the success of the industry. Under nationalisation they were still largely the same people who ra

he gas undertakings as separate entities prior to nationalisation. The family spirit was jealously guarded throughout he South Western area, not only between the divisional managers and engineers and those who worked with hem, but also between the industry and hose across whose land the Board's nains were laid in the endeavour to keep off the roads as much as possible. From one end to the other the South Western area was longer than the distance from London to Newcastle. Although it was a lovely and healthy area t was a poor area from the point of view of the gas industry in that it was not densely populated.

In thanking the contractors who had participated in the remarkable achievement which they celebrated that day, Mr. Chester mentioned that they had installed an average of one mile of new main per working day during the past year. The Board and staff were grateful not only to the contractors who had laid the mains but also to the firms who had supplied the pipes and to the farmers and others who had been so public-spirited in allowing mains to cross their properties, thus avoiding the breaking up of surfaces and the disturbance of traffic and also saving the Board a good deal of money.

In the course of connecting up the various parts of the area they had brought, or would bring in the near future, gas supplies to nearly 300 hamlets which were previously without a gas supply of any kind. The ultimate aim was to reduce the number of gasworks to 12. William Murdoch built his first gas undertaking in the South West at Redruth where, regretfully, the Board had recently closed down the works which after over 150 years were incapable of being operated with efficiency. The pioneering spirit which had its origin so many years ago had led the Board to agree to install new processes which they had inspected in America and on the Continent. There was one to make gas and at the same time to make by-products for the rubber industry (of which the South Western Board was the only supplier); another would make a very high quality gas, and another, a French process, would deal with the carbonization of coals which were not normally used in the gas industry today. Those three large-scale plants would, he hoped, be in operation by the end of next year. They already had one of them in operation and the others were now planned and with the aid of their technicians they hoped eventually to produce probably the cheapest gas in this country.

The cost of gas production in some of the smaller undertakings which had been closed down since vesting date was at least three times as much as in larger and more modern installations, and he was grateful to all who had co-operated in bringing about the measure of integration so far achieved. The Board looked forward to an efficiency of 85% compared with the average of 40% under pre-vesting conditions. It was proud of the fact that it had been able to peg the price of gas for so long. It had been held for three years in spite of rapidly rising costs which, during that period, had been equivalent to 3d. per therm. The Board had absorbed increased costs of over £1¼ mill. per annum, and although it had been compelled recently to raise the price for the first time since 1952 it would continue to strive to absorb as large a proportion of the increased cost as possible.

MR. W. H. G. ROACH, M.B.E., Managing Director of William Press & Son, Ltd., replied for the guests and congratulated the Chairman and the Board on their fine achievement, and especially on the good relationship existing between the Board and its employees. Much was said nowadays about people being unwilling to work but he believed that given good leadership and good will they were still ready to do a good job of work. He also paid tribute to the public spirit of the leaders of the civic life of the area.

Statistics

Miles of main laid yearly: 1949/50, 87; 1950/51, 116; 1951/52, 122; 1952/53, 137; 1953/54, 202; 1954/55, 269. The total miles of main in the area at March 31, 1955, was 5,243 compared with 4,313 at vesting date.

Since 1949 a supply of gas has been made available to 91 new centres of population largely through the laying of integration main. The mainlaying programme provides for a further 210 centres of population being supplied within the next few years.

Works closed down since vesting date: Bampton, Bourton-on-the-Water, Brixham, Bruton, Buckfastleigh, Budleigh Salterton, Callington, Camborne, Castle Cary, Chipping Sodbury, Chudleigh, Cinderford, Clevedon, Colyton, Crediton, Dartmouth, Dawlish, Devizes, Dursley, Fowey, Gunnislake, Hayle, Ilminster, Ivybridge, Lostwithiel, Midsomer Norton, Mitcheldean, Moreton-in-the-Marsh, Newnham, Newton Abbot, Radstock, Redruth, Ross-on-Wye, St. Blazey, St. Ives, Salcombe, Shepton Mallet, Stow-on-the-Wold, Teignmouth, Thornbury, Tiverton, Trowbridge, Wellington, Westbury, Wincanton.

Works converted to liquid petroleum gas/air plant in lieu of coal gas plants: St. Just, Uffculme.

The volume of gas distributed in the year 1954/55 was 27,372,341,000 cu.ft.

Installed storage capacity throughout the area is now 80,160,000 cu.ft. The installed compressor/booster capacity is 18,542,000 cu.ft. per hour.

The power output of the compressor/booster prime movers is 11,220 horse power.

The total length of mains laid through private land by means of wayleave rights is 180 miles. The total length of mains laid by contract is 740 and by direct labour 260 miles. The present number of consumers is equivalent to 125 per mile of main.

The Board took the opportunity in a commemorative brochure of expressing its appreciation of the co-operation of all landowners and farmers in the negotiation of wayleaves and for the facilities granted by British Railways and various highway authorities, which had assisted materially in the execution of the work, and to the mainlaying contractors assisting in the Board's mainlaying work:—E. W. Avent, Ltd.; J. Joiner & Son; E. Thomas & Co., Ltd.; A. S. Clarke (Worcester), Ltd.; William Press & Son, Ltd.; Wilcox & Stephens, Ltd.; E. Ireland (Contractors), Ltd.; G. Pollard & Son; P. W. Wilkins & Son, Ltd.; and E. E. Jeavons & Co., Ltd. Special acknowledgments were also made to the Staveley Iron & Chemical Co., Ltd.; the Stanton Ironworks Co., Ltd.; and the Clay Cross Co., Ltd., for the steady and continuous flow of pipes, without which the work could not have been carried out so expeditiously.

Visit to Carron Works

Forty members of the Hospital Caterers' Association (Scottish Branch) recently visited Carron Works. The party was shown various departments of Carron and afterwards entertained to tea in the concert hall of Carron Works Recreation Club. The visit was arranged by the Secretary of the Association's Scottish Branch, Mr. J. L. F. Harris, Catering Officer of the Western Infirmary, Glasgow, and Mr. F. McEwan, Carron Heavy Duty Cooking Equipment Department Manager.

Mr. McEwan informed the guests that Carron Company also had works in Glasgow capable of undertaking work for the complete installation of a kitchen including all the necessary tabling, lockers, cutlery cabinets, etc.

In thanking Mr. McEwan, on behalf of the guests, Miss Elliot, Stobhill Hospital, Glasgow, said they were most appreciative of the Carron Company's hospitality.

The Good Housekeeping Institute, in association with the Gas Council, has published two new books which should be of interest to domestic gas users. *International Kitchen* contains a new series of cookery recipes from thirteen countries. *The Laundry Book* contains useful advice on the choosing of laundry equipment, types of washing products, and the removal of stains. It describes methods for dealing with the weekly wash and for washing and ironing all kinds of fabrics and soft furnishings. Both books are priced at 1s. 6d.

Leslie T. W. Maton, of Reading, receives £500 in settlement of his claim to damages at common law from the Southern Gas Board following an accident at Reading gasworks on March 25, 1954. He was descending a ladder when his foot caught against a pipe and he fell to the floor and fractured his right arm. He received treatment at Battle Hospital, Reading, and was disabled for work until November 15. He is 45, and the National Union of General and Municipal Workers took up the case on his behalf. In addition to the damages he received an industrial disablement pension.

The stars of today...

. . . are created by public acclaim. Cinema audiences acclaim fascinating Diane Cilento, who features in the currently released film "Passage Home"—and housewives acclaim the Century Cooker, which features in thousands of modern kitchens throughout the British Isles. The roles of these two stars in contemporary life are in widely differing fields, but the pre-eminence of both is the result of their fulfilling the exacting demands of their respective roles.

Star features of the CENTURY

★ Vitreous enamelled surfaces throughout
★ Cream exterior
★ Removable double platerack
★ Used oven heat vented in front of backplate to heat platerack
★ Four fast-boiling hotplate burners with fixed stop for simmering
★ Large quick-heating grill
★ Safety-type taps ★ Hotplate parts removable ★ Roomy oven — base suitable for slow cooking
★ Mainstat controls oven temperature ★ Drop-type oven door
★ Oven lights from front by flash tube ★ Storage space in plinth
★ Hotplate side extensions and gas lighter supplied if required

DIANE CILENTO—a star at 21, appears with Anthony Steel and Peter Finch in "PASSAGE HOME"—she is the only girl among 30 men aboard a Merchant ship bound from South America to Britain. The film is a J. Arthur Rank Organisation release, directed by Roy Baker.

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The MAIN No.20

CENTURY

Cooker

Note the name-made by MAIN

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the *NEW* water heater for single-point duty . . .

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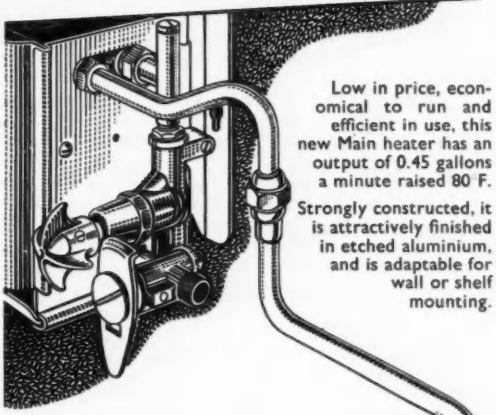
GAS WATER HEATER



Low in price, economical to run and efficient in use, this new Main heater has an output of 0.45 gallons a minute raised 80° F.

Strongly constructed, it is attractively finished in etched aluminium, and is adaptable for wall or shelf mounting.

ACCESSORIES AVAILABLE

Products deflector ● Swivel outlet spout ● Gas Governor ● Interlocking Gas and Water Cocks complete with gas and water throttles and pilot light

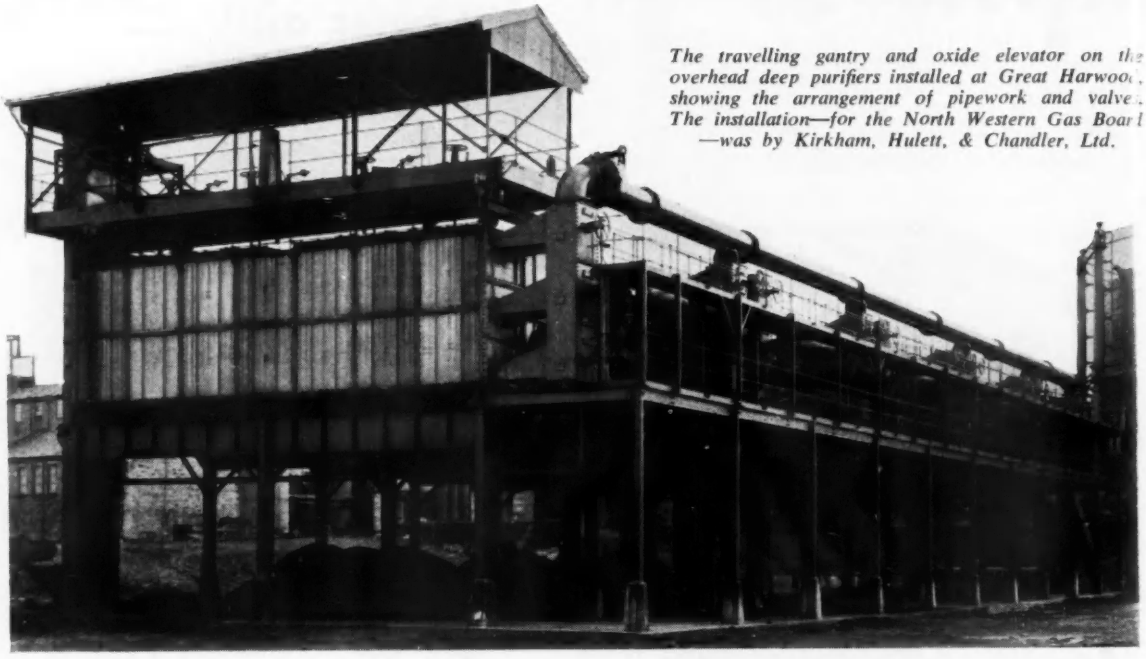
low priced to meet popular demand

MAIN WATER HEATERS LTD.

Gothic Works, Thornton Road, Croydon, Surrey

W 34

COKE OVEN GAS PURIFICATION —in the North West



The travelling gantry and oxide elevator on the overhead deep purifiers installed at Great Harwood, showing the arrangement of pipework and valves. The installation—for the North Western Gas Board —was by Kirkham, Hulett, & Chandler, Ltd.

Crude coke oven gas supplies from the Altham coke oven plant of the National Coal Board were originally supplied into the Accrington, Burnley, and Haslingden undertakings, where the gas was separately purified. This continued until recently when, as a result of the installation of adequate purifier capacity at the Great Harwood works all crude coke oven gas available from the coke ovens has been routed into these works for purification and subsequent distribution into the North Western Gas Board (East Lancashire Group) grid. The crude coke-oven gas is transmitted from the Altham coke-oven plant by means of compressors working at 12 lb. per sq. in., for a distance of just under two miles.

The crude gas contains an average of 200 grains of H_2S and three grains of ammonia per 100 cu.ft. of gas and is handled in a single purification stream comprising five new cast-iron boxes elevated above the ground, having a nominal capacity of 5 mill. cu.ft. per day. The purification stream operates on an average 'R' ratio of 30 and a space velocity through the boxes of 3 ft. per minute.

The purifier boxes are of Kirkham, Hulett, & Chandler's manufacture, each box being 35 ft. wide by 30 ft. long by 10 ft. deep, the oxide being contained in four layers, each layer having a depth of 18 in. to 20 in., giving a total depth of approximately 6 ft. 6 in. of oxide.

The 180 tons of oxide in each box is delivered by the oxide-handling plant, which consists of a belt and bucket-type elevator, enclosed in a mild steel casing, the oxide being fed into the boot of the elevator by mechanical shovels. The elevator in turn delivers the oxide on to a belt conveyor, from which it is directed into the boxes by adjustable ploughs and canvas chutes.

The whole of the conveyor and elevator is mounted on a hand-operated travelling gantry having an asbestos roof for weather protection. In addition to the usual rails at the sides of the boxes the elevator is steadied by additional spring-loaded wheels which run on a separate track, carried on the steel structure just below the bottom of the boxes. The gantry also carries the usual capstans for handling the mild steel covers.

To provide thermal insulation the covers are insulated with 'Onazote', this being placed between an inner and outer skin hermetically sealed, the inner plate thickness being $\frac{3}{16}$ in., and the outer sheet $\frac{1}{8}$ in. thick.

One interesting feature of the installation is the arrangement of valves which, although somewhat elaborate, in addition to providing for the usual rotational method of working, allows for upward, downward or divided flow. Easy access is obtained to all the valves from platforms and walkways running the full length of the boxes. Oxide is removed from the boxes by the ordinary type of discharge chutes, and there is ample head room from the floor below for operating mechanical shovels.

The gas heater, arranged in the inlet main, is suitable for either high- or low-pressure steam. This heater is of all-iron construction having elements of the spiral-gilled type giving great turbulence to the gas, thereby promoting high heat transfer. In addition steaming points are arranged to each box. The whole of the electrical equipment is of the flame-proof type and the remote indicating thermometers are also operated electrically, the temperature of any particular point being shown on a multi-point temperature indicator of Kelvin and Hughes manufacture. Pressure gauges are centralised on a panel mounted at one end of the installation.

'Bride of the Year'

Entries for Mr. Therm's 'Bride of the Year' contest have been received by the Gas Council from every part of the British Isles, even from as far away as Stornoway. Requests for entry forms have been received from Malta, Southern Rhodesia, the Gold Coast, and Nigeria, although it was not possible for overseas entrants to compete.

Thousands of brides (who married between January 1, 1954, and April 30, 1955) have now completed their first test, a short written examination in cookery and laundry work, and many are in the second stage, which consists of a personal interview and the baking of a cherry cake to a set recipe. Those who have reached this stage have received a copy of 'The Happy Home,' an encyclopædia of home management produced by the Gas Council and *Good Housekeeping*. Area finalists will compete at the Festival Hall for the first prize of £500, and husbands will be able to help—but only in washing up!

NEW PARKINSON 'PEARL' COOKER

The new Parkinson 'Pearl' cooker is designed to meet the demand for a popular model for average household use. Beauty of styling and finish makes this appliance comparable with the most expensive cookers on the market, and yet it is low priced. The red badge, the red oven tap and lettering on the taps provide a subtle and attractive contrast to the brilliant cream vitreous enamel finish.

Safety taps are fitted throughout and are named for easy and positive identification. The easy-to-clean removable and reversible hotplate is fitted with four large size burners of novel design for extra quick boiling. The burners and top-bars are vitreous enamelled and are

The 'Pearl' Cooker

available in black or brown colour. The burners are cast in pairs and are interchangeable. The hotplate is finished in cream vitreous enamel.

A large-size grill is fitted centrally below the hotplate and has a vitreous enamel cover. The grill pan is also finished in the same manner and is supplied with a two-position grid. The cooker is fitted with splash plate and platerack with 11 plate positions finished to match the cooker. A fixed or removable crown tray is optional. The oven is of generous proportions and has a flush fitting door extending over the width of the cooker. Concealed hinges are fitted to the door. An Ajusto thermostat is provided with an attractive cream plastic dial.

The inside of the oven is finished in grey vitreous enamel, the sides being embossed to accept the two oven shelves. There are seven shelf positions. The oven has two side burners. A patent bedding device, consisting of an adjustable spring sealing strip, is fitted to the oven door to ensure a perfect seal. Both the door and the oven sides are insulated with glass wool to avoid heat losses and thus increase the efficiency of the oven. The 'Pearl' cooker maintains tradition of easy servicing with a consequent saving on long-term maintenance due to the accessibility of all parts.

Dimensions: Height to top of splashplate, 53 in.; width including lighter elbow, 22 in.; depth including oven door handle, 23 in.; oven height, 16 in.; width, 16 in.; depth, 13¼ in.; hotplate width, 19¼ in.; depth, 17¼ in.

GAS AT THE LLANGOLLEN EISTEDDFOD

Two Dutch competitors inspect one of the gas cooking ranges at the International Eisteddfod, Llangollen, while Mr. J. F. Lloyd, Wrexham Group Chairman, and Mr. H. Blythe, Colwyn Bay Group Chairman, look on.

Last year the Wales Gas Board, for the first time, assisted at the International Eisteddfod at Llangollen by making available equipment and gas supplies for the official caterers. The caterers found this such an improvement on previous years that an extension of the facilities have been provided at their request. The increased part played by gas in contributing to the gastronomic wellbeing of those visiting Llangollen for this international event is indicated by the fact that the total amount of gas consumed by the caterers was 64,000 cu.ft., an increase of 42.2% over last year. The number of meals served was approximately 20,000 exclusive of snacks and the buffet. The maximum daily output from Llangollen works was 97,000 cu.ft. The equipment loaned by the Wales Gas Board was, in the buffet, two 40 gal. Lune boilers, six 10 gal. boilers and one Aqua Flo cafe set; in the kitchens, two 40 gal. Lune boilers, two Duke of York ranges, two 5 ft. hot cupboards, two drying cabinets and one L.1000 refrigerator. Requests were also received for the specially produced menu cards, for which there was a great call last year. These menu cards were used by the different nationals for obtaining autographs, and they were so much appreciated that they have now reached many countries as souvenirs of a never-to-be-forgotten experience. The Board, by special request, again provided many thousands of these menu cards for the Eisteddfod. Serviettes with pictures of the Gorsedd Stones, were also provided by the Board.

Co-operative Tar Trading

Yorkshire Tar Distillers, Ltd., Leeds, announce the conclusion of a capital reorganization in association with their principal suppliers of crude tar, namely, the North Eastern Gas Board, East Midlands Gas Board, National Coal Board (N.E. Division), and four coke oven companies.

Contracts for the supply of crude tar on a pooling basis have been renewed and greatly extended, and the suppliers of crude tar have taken a 50% interest in the controlling shares, which now stand in the name of Yorkshire Tar Corporation, Ltd., as holding company of the Group. The trading operations in tar distilling will continue to be carried on by Yorkshire Tar Distillers, Ltd.

Mr. H. Ellison Sugden, Director since the formation of Yorkshire Tar Distillers, Ltd., in 1926, and Chairman since 1945, has been elected Chairman of the holding and other companies in the Group.

Scottish A.G.M.

Preliminary notice has been given of the annual general meeting of the Scottish Association of Gas Managers, to be held at the Town Hall, Inverness, on September 22, under the Presidency of Mr. John Ford. The autumn golf and bowls competitions will be played on September 21, golf at Nairn and bowls at Inverness; the ladies' golf competition will be at the Culcabuck Club, Inverness. Golf entries should reach Mr. W. P. Rae, of R. & A. Main, Ltd., 82, Gordon Street, Inverness, by September 7, and bowls entries should be sent to Mr. Thos. Thomson, of Alder & Mackay, Ltd., New Grange Works, Edinburgh, by September 12. The Secretary for the ladies' golf competition is Mrs. L. Fletcher, 22, Huntly Gardens, Glasgow, W.2.

The annual outing on September 23 will take the form of a coach tour to Glen Affric, with luncheon at the Cannich Hotel, Cannich. By invitation of the Chairman and members of the Scottish Gas Board, there will be a reception and dance on September 22, and while the meeting is in progress the ladies will be entertained to a bus outing and tea.

Smokeless Homes for Paisley

Tenants of new municipal houses at Paisley will have to burn smokeless fuels only (except when supplies are not available). This was stated at a Press conference on the control of air pollution at Paisley on July 13.

It was claimed that a substantial advance in the control of air pollution had been made at Paisley by the adoption for the first time in Scotland of such measures. Edinburgh, Glasgow, and Greenock had powers to establish smokeless zones, but so far they had not been implemented.

Paisley had the choice of two methods of dealing with the subject—obtaining powers from Parliament or of dealing with the subject more simply by getting the co-operation of their tenants. The Council's decision to take the latter course followed a visit by a deputation to Bradford and Nottingham, where smoke control has been satisfactorily attained with the co-operation of tenants.

The success of the scheme will depend on the supplies of smokeless fuels available, and approaches are to be made to the Ministry of Fuel and Power. This is now the main problem to be faced, as smokeless fuels are still not available in large quantities. To convert the industrial belt of Scotland to smokeless fuels for domestic fires would take about 19 mill. tons per annum.

No specific areas of the town have been mapped out for smokeless fuel burning, but it is likely that the new housing estate at Foxbar and the redevelopment area between George Street and Canal Street in the centre of the town will be affected. An initial programme suggested 4,000 houses would need smokeless fuels. All Paisley's municipal houses are so equipped that they could burn smokeless fuels, but it is not proposed to apply the condition to present houses.

LIVERPOOL STILL HAS 10,866 GAS LAMPS

Liverpool has now nearly 2,000 more street lamps in commission than before the outbreak of war, despite the loss of thousands of lamps and the great damage done to installations by enemy bombing during the war.

Mr. C. C. Smith, City Electrical Engineer, in his annual report, says that before the war there were 33,170 lamps in commission, namely, 17,989 electric and 15,181 gas. Today the number had grown to 34,706, of which 23,839 are electric and 10,866 are gas.

He continues that nearly all the pre-war electric lamps have been replaced, and an additional 5,800 have been newly erected or converted from gas lighting.

When the report was presented to the Committee, the new Chairman, Alderman Hugh Carr, made an appeal to parents of children to keep their youngsters during the holidays from damaging the street lighting installations and lamps. During the past year, he said, 30,000 odd glass sides had been deliberately smashed and nearly 3,000 electric bulbs broken. The cost of damage replacements was £4,200. That had been the average cost of damage replacements during the past four years.

The Committee, he said, was facing the task of replacing 11,000 gas lamps by 15,000 electric lamps, and the scheme would be spread over a period of 10 to 15 years and would cost about £600,000. They also planned to modernize the street lighting in the centre of the city.

NORTH THAMES FIRST AID AWARDS

Our picture shows the Fulham team, comprising Messrs. McDaniel (class leader), Jones, Stephens, Eatenton, and Pairmain (reserve), receiving their trophies from Mr. Michael Milne-Watson.

In this year's first-aid competition organized by the North Thames Gas Board for teams from its works and offices, the Fulham team were adjudged the winners. This is the third time in the past four years and also the second year running that Fulham have won this trophy, and they now go forward to represent the Board in the gas industry finals to be held later this year. Altogether 25 teams entered for the competition, the top 10 teams in a preliminary test going forward to the finals which were held at the Board's Commercial Institute in Stepney. Dr. M. M. Scott, Deputy Surgeon-in-Chief, St. John Ambulance Brigade, judged the team test, while the pairs tests were judged by Mr. G. E. Craft, the Association's Competition Secretary. Individual plaques and a team shield were presented to the victorious Fulham team by the Chairman of North Thames Gas Board, Mr. Michael Milne-Watson. Kensal Green (second) and Bow Common (third) were also presented with plaques.

British Chemicals

The Association of British Chemical Manufacturers, in its 1955 edition of the directory 'British Chemicals and their Manufacturers,' includes some 12,000 products named systematically. The directory is said to be unique within the chemical field in that only manufacturers of the products are given against each entry. While the primary object of the book is to give purchasers information on the products made by members of the Association, the contents also include lists of proprietary and trade names and trade marks. Two booklets issued by the Association are by a committee intended to 'stimulate and encourage the application of work study in the chemical industry.' The committee, set up in February, 1954, has called these booklets 'How to Start' and 'Some Results' The first describes how work study can be introduced and the second shows how it has been developed in 14 British firms.

MORE INCREASES IN GAS PRICES

As was generally expected, following the increase in coal prices, gas is to be dearer in the West Midlands. This was announced at a meeting of the Gas Consultative Council at Stoke-on-Trent on July 18 under the Chairmanship of Ald. W. H. Malcolm (Coventry). The new tariff will come into operation on August 31, and will generally amount to 1d. per therm. In North Staffs. where a farthing a therm has been imposed to meet the cost of importing coal into Stoke-on-Trent—unnecessarily, it has been contended—the new advance approximates to ¼d. a therm.

Mr. G. le B. Diamond (Chairman of the West Midlands Gas Board) strongly regretted the necessity for the increase, but pointed out that the cost to the Board of the higher coal prices would amount to as much as £2,100,000 in the course of 12 months. To meet the position it was the intention of the Board, he said, to raise coke prices by 18s. 4d. a ton, which would bring in approximately £1,190,000 in the course of a year, and that left £900,000 to be found. In order to do so there would have to be a rise of 1d. per therm except in North Staffs.

This is the second increase in gas prices in the area within a short period, but when the last rise was sanctioned it was realized that higher coal prices were imminent, and the Consultative Council was warned that these would have to be passed on, and gave agreement to the policy of the Board. Notwithstanding this much feeling was expressed at the meeting on July 18.

The Chairman said the extent of the new rise had come as a bombshell, but as had already been said the action of the Board in increasing the gas prices was inevitable, and really he did not think there was much the Council could do about it.

Strong criticism came from Mr. E. Coupland, who thought the Council would be wrong in giving approval to the increase. In effect it was being asked to function merely as rubber stamps for something of which it did not approve. He went on to complain of the Government's policy in importing coal, to which he attributed a considerable part of the responsibility for the need to raise prices. In his view the rising costs were not inevitable if the Government pursued a different policy. He moved for the rejection of the recommendation for higher prices, but this was negatived.

North Eastern Budget

An increase in the price of gas which will mean about 4½d. per week for the average domestic customer in the North Eastern Gas Board's area, was approved by the North Eastern Gas Consultative Council in Leeds on July 18. The price is to be increased by 2d. a therm up to a consumption of 12,500 therms a quarter and 1½d. a therm for consumption in excess of that quantity. The 5% discount allowed on gas accounts settled within 28 days will be reduced to 2½%.

Dr. R. S. Edwards, Chairman of the North Eastern Gas Board, told the Consultative Council that the increases were unavoidable. The Board had not only to meet an estimated deficit of £999,000 but had to provide a reasonable margin for the future. The known increased costs for 1955-56 were £1,253,000, a figure that would rise to £1,564,000 in the following year. 'Nearly all these increases are outside the direct control of the Board,' he added.

Dr. Edwards said the increases were due to a series of events which had occurred since last autumn. Higher wages and salaries were costing half a million pounds a year more, notwithstanding economies made by the Board and a substantial reduction in the labour force today as compared with 1952. The increases in coal prices were estimated to cost £1,034,000 a year at least, and when details of the new charges became available that estimate might have to be increased by a further £40,000. Freight and haulage charges, national insurance employers' contributions, and higher capital charges were further items on the Board's increased expenditure. As a result on the present tariff the Board would have an adverse balance for 1955-56 of £663,000 which would increase to £995,000 by the following year.

Referring to the proposal to reduce the discount allowed on gas accounts for settlement in 28 days from 5% to 2½%, Dr. Edwards said: 'This Board is the only one in the country which allows such a discount, and although consideration has been given to its complete abolition to bring the practice in line with other Boards, it is felt that there is some justification in giving a discount to those consumers whose accounts are settled promptly.'

Dr. Edwards added that the proposed alterations were estimated to yield £1,200,000 in a full year. If the new prices operated from meter readings from August 1, 1955, the current year's yield was estimated at £800,000, giving a surplus of £137,000. The estimated surplus of £205,000 for 1956-57 would be recognized as narrow when it was realized that the gross turnover of the Board would now be over £18,000,000 a year.

Rise of 2d. in Eastern Area

At a meeting of the Eastern Gas Consultative Council on Monday Sir John Stephenson, Chairman of the Eastern Gas Board, said that the price of gas would be increased by 2d. a therm. The increase would come into effect on August 3.

Sir John said that the Board had hoped, when it increased the price of gas by 1d. per therm in August, 1954, that it would achieve a further period of stability of gas prices. Increases in the Board's annual costs, however, over the past year had amounted to nearly £2 mill. The greatest contributing factor to this sum was the increase in the price of coal, which would cost the Board £1,117,000. The increases will mean that the average domestic consumer will pay 4½d. a week more for his gas.

W.G.F. AT THE BUILDING CENTRE

Members of the Maidstone Branch, Women's Gas Federation, were entertained to tea by the Gas Council at the Building Centre recently. Left to right, Miss Jakeways, Hon. Secretary, Maidstone W.G.F.; Miss M. Godby, Technical Officer, Women's Gas Federation (Headquarters); Mr. P. C. Buckle, in charge of the Gas Section; Mrs. Dixon-Grubb, Chairman (Maidstone W.G.F.); Miss Lovell Burgess, Lectures Officer, Gas Council; Mrs. Evans, Home Service Adviser, Maidstone; and Mrs. Hoadley (Maidstone).

COMPANY NEWS

GEORGE COHEN

Combined profits of the George Cohen, Sons & Co., Ltd., group for the year ending March 31, 1955, after deduction of taxation and interest on unsecured notes, amounted to £646,160. The 4½% dividend on preference stock, less tax, accounted for £37,125 and a 3½% interim dividend paid on ordinary stock, less tax, accounted for £28,875. It is proposed to pay a final dividend of 11½%.

SIMON-CARVES, LTD.

A final dividend of 10% for the year ending December 31, 1954, is to be paid by Simon-Carves, Ltd. The net profit for the year amounted to £447,850 and interim dividends, each of 10%, were paid on September 30, 1954, and March 31, 1955. The balance brought forward to 1955 was £441,469. On December 29, 1954, the issued capital of the Company was increased to £524,958 by the issue of 47,723 Ordinary shares of £1 each by way of capitalization of reserves. In his statement, Mr. R. B. Potter, the Chairman, said that the value of work carried out by the Company in 1954 had been a record and had approached £16 mill. There were indications that this figure might be exceeded in 1955. Owing to the somewhat conservative methods of taking in profits, the results over the years might appear not to have kept pace with the continued expansion. However, the Company was now at a stage where a number of the large contracts were being completed, and there was reason to expect that the profits for the next few years should be at least as good as those for 1954. He said that the Coke Oven and Washer Department, which was responsible for some of the biggest coke oven installations in Britain, had been particularly successful in India, where it had received an order from the Indian Iron Steel Co., Ltd., for the largest coking plant in that country and it was continuing to carry out work for the Tata Iron & Steel Co., Ltd. It appeared likely from the National Coal Board's programme that the coal preparation section would be fully engaged for many years to come. The Power Plant Department was in the middle of a very large programme of high-pressure water-tube boiler construction for power stations, mainly for the Central Electricity Authority. The Building Department was now becoming a very important unit in its own right, taking on large contracts for special civil engineering. It had been particularly successful in its work for the National Coal Board, and in view of the large development schemes planned for the future there was every prospect that it would continue to be busy for a long time to come. In partnership with the General Electric Co., Ltd., the company had formed a study-group on the application of nuclear energy for power production.

METERS, LTD.

During the year ended March 31, the capital of Meters, Ltd., was increased by a bonus issue to the ordinary stockholders bringing the total issued capital of the Company up to £500,000, which more nearly represents the capital employed in the business. In his review circulated with the accounts, the Chairman, Mr. V. A. B. Hughes, states that the year was satisfactory in many respects and particularly in the field of research and development, on which much effort was spent. The financial position of the Company has improved and net profit, after tax, has increased from £27,028 to £38,788, which has enabled the Board to increase the amount distributed by way of dividend, to make a contribution to general reserve and to increase the amount carried forward. In detail, the dividend recommendations made by the Board are the payment of the usual amount on the preference stock and a final dividend of 4% on the increased ordinary stock. This, together with the 5% paid on the former ordinary capital last November, will give a distribution equivalent to 12% on the old ordinary capital figure, compared with 10% last year. During the year, Meters, Ltd., acquired a new subsidiary company producing domestic appliances. It will take some little time to bring this company to a satisfactory profit earning stage, but the Board has every confidence in its future as its products are of good technical quality. Manufacturing problems are difficult to deal with in these times of labour and material shortages. A new assembly plant has been completed in the Bristol area to replace leased premises no longer suitable. It has been necessary to increase stocks of raw materials, which has consequently tied up more liquid capital but, offsetting this, certain premises no longer used have been sold and the effect of this sale has eased any strain on cash resources. The Board has also disposed of £6,500 of the unquoted investments at par. For some time the Company has been devoting an appreciable amount of money to meter research and development. This work is bearing fruit and is reflected not only in the better performance of current products but also in the introduction of new types and specifications, some of which are stimulating a great deal of interest throughout the industry.

KEITH BLACKMAN, LTD.

The profit and loss account of Keith Blackman, Ltd., for the year ended March 31 shows a profit, after charging all expenses and making provision for depreciation, Directors' fees, etc., of £262,347, to which must be added the balance of £108,208 brought forward from the previous year. Provision for taxation takes £150,000, and £50,000 is transferred to general reserve. The proposed dividend is 15%, against 12½% for the past two years, leaving £112,75[illegible] to be carried forward. The Chairman, Mr. M. Burningham, in his statement issued with the report and accounts, says that increased production has been made possible by the virtual completion of the five-year plan to modernize the plant. The Company now has over 90 apprentices, considerably more than it has ever had before. Orders received showed an appreciable increase, and since the beginning of the current financial year there has been a further increase over the corresponding period in 1954. The works are being kept consistently busy. 'If we could rely on a lengthy period of stabilized conditions of wages and material costs and without sudden and unexpected interruptions and stoppages, we have little doubt our business would continue to expand with increasing prosperity for all interested.'

AUCKLAND GAS

Sir James H. Gunson, Chairman of the Auckland (New Zealand) Gas Company said in his annual address that the profit for the year ending December 31, 1954, after provision for taxation of £19,615 was £18,419. Depreciation for the year was at a record level—it included the writing off of the obsolete horizontal retorts—and was £60,806, an increase of £4,584 over the previous year. He said that the Auckland Hospital Board had resolved upon gas for all essential heat services of the new North Shore Hospital about to be built and for a substantial extension of the Wilson Home at Takapuna. The anticipated gas demand of these two institutions alone would add 25% to the North Shore sales. Blocks of flats to be built in Auckland under Government contract are to have gas for cooking, water heating, space heating, in addition to full gas service on the roof. Industrial and commercial supply of gas accounts for only 23% of the total, the balance 77% being the domestic use of gas. The residuals of coal carbonization, principally coke, tar, and ammonia, were worth not less than £210,000 annually to the Company. The Chairman said that shareholders in gas undertakings and the public generally should realize that the progress of the gas industry during the last two decades had been hampered, even virtually halted, through needless and unrestrained competition from electricity which had been unfair because the Auckland Power Boards had cut prices on a differential basis and raised rates to other consumers. The domestic load of the Company had not been maintained fully in the face of the unwarranted price competition from the electric power boards, but the continued expansion of the use of gas in the industrial and commercial areas of Auckland had been gratifying. A dividend of 3% had been authorized. The Company's balance date was altered from December 31 to March 31, the next balance date being March 31, 1956.

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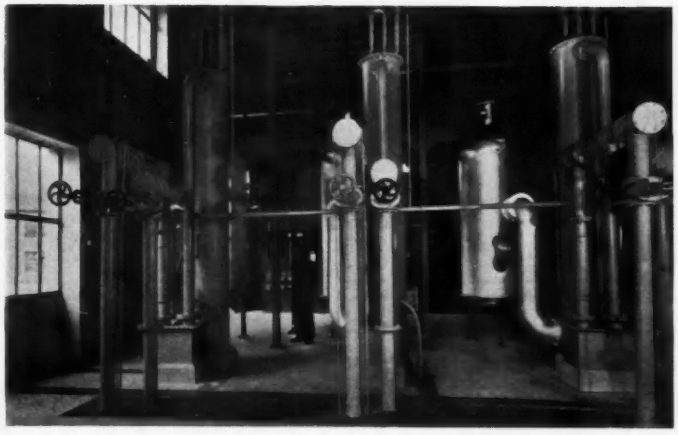

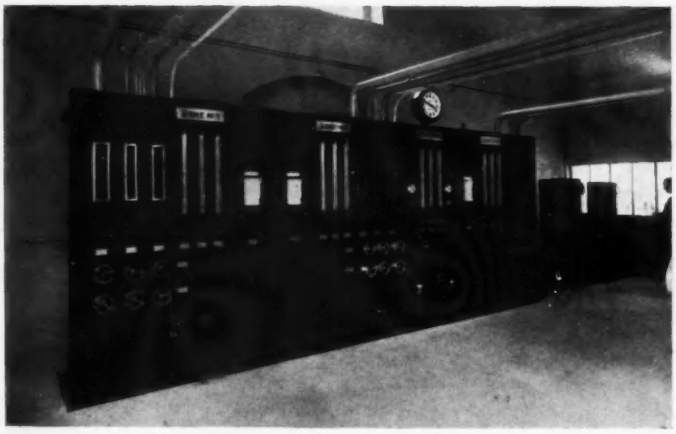

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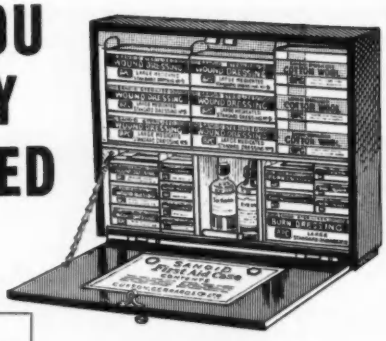

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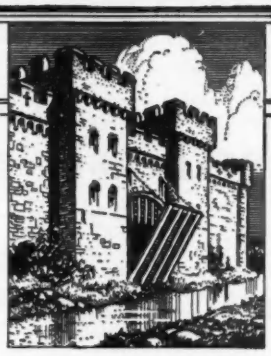

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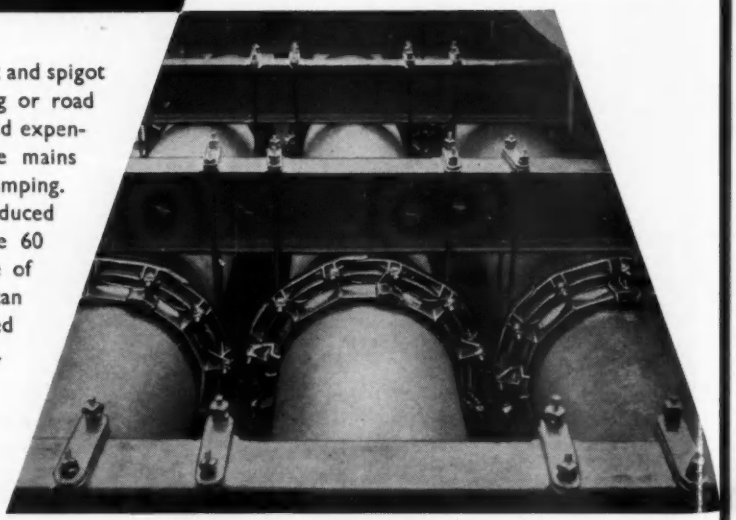

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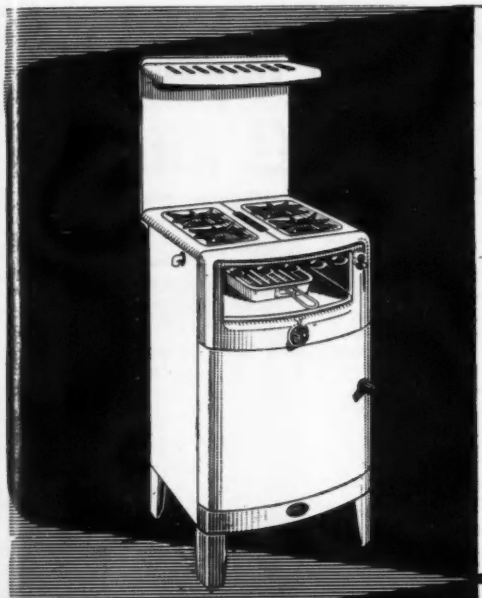

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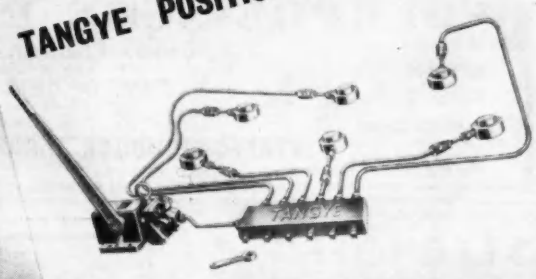

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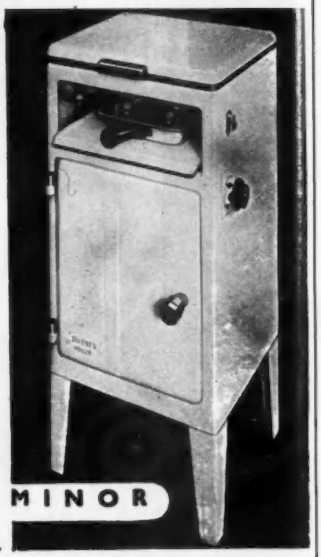

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(GAS DEPARTMENT)

TENDERS FOR COAL HANDLING EQUIPMENT

THE Gas Committee of the above Council invite Tenders for the supply, delivery, and erection of COAL HANDLING EQUIPMENT, consisting of (a) a Loader incorporating a feed hopper, and (b) a Horizontal 35 ft. centres Conveyor, in accordance with the Specification prepared by Mr. J. Collins, A.I.G.E., Gas Manager.

Copies of the Specification, General Conditions, and Form of Tender may be obtained, on application, from the undersigned. No Tender will be considered unless submitted on the official form.

Sealed Tenders, addressed to The Chairman, Gas Committee, Gas Offices, Kilmorey Street, Newry, and endorsed "Tender for Coal Handling Equipment," must be lodged not later than 12 o'clock noon on Thursday, September 8, 1955.

The Gas Committee shall not be bound to accept the lowest or any Tender.

Dated this the 20th day of July, 1955.

(By Order)
MICHAEL MAGUIRE,
Secretary.

APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18–64 inclusive or a woman aged 18–59 inclusive unless he or she, or the employment, is exempted from the provisions of the Notification of Vacancies Order, 1952.

SOUTH WESTERN GAS BOARD

AN opportunity occurs for a young qualified gas engineer, preferably with production and distribution experience, to be employed in the Chief Engineer's Department as a Capital Project Progress Engineer, dealing with the progress of capital works on both manufacturing plant and integration mains.

The salary for the post will be within grades A.P.T. 9-11 (range £700-£910), commencing salary being dependent upon experience and qualifications.

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Applications should be sent to the Chief Engineer, South Western Gas Board, 9a, Quiet Street, Bath, not later than July 30, 1955.

AN opportunity is open for an ENGINEER having keenness and ability for an executive post with an early opportunity for advancement.

Candidates must have wide experience in Design and Estimating in connection with Gasworks Plant and General Engineering.

The post would be permanent to a suitable man, and a suitable salary would be paid. Staff Pension Scheme in operation and assistance with housing if required.

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WEST MIDLANDS GAS BOARD

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ASSISTANT NEW BUILDINGS REPRESENTATIVE

APPLICATIONS are invited for the above appointment on Divisional Staff.

The successful candidate will be required to contact and canvass purchasers and occupiers of new property to promote the sale of gas appliances. A knowledge of gas appliances is desirable, but not essential, and emphasis is laid on personality and salesmanship.

The salary for the post will be within Grade 6 (£565-£645 per annum) of the National Salary Scales.

The post is pensionable, and the successful candidate may be required to pass a medicial examination.

Applications, stating age, and experience, together with the names of two referees, should be addressed to Mr. Stanley Jones, Divisional General Manager, West Midlands Gas Board, Kensington House, Bath Street, Dudley, to reach him within fifteen days of the appearance of this advertisement.

J. C. INGRAM,
Secretary to the Board.

WEST MIDLANDS GAS BOARD

WARWICKSHIRE DIVISION
TECHNICAL ASSISTANT—LEAMINGTON SPA/WARWICK DISTRICT

CANDIDATES should hold the higher grade Certificate in Manufacture of the Institution of Gas Engineers, and should possess practical experience in the control of Vertical Retort installations and C.W.G. plant. The Works has a production capacity of five million cubic feet per day.

The salary will be within Grade 7 (£620-£700 per annum) of the National Salary Scales for Gas Staffs.

The post is pensionable, and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two referees, should be addressed to Mr. A. Allen, Divisional General Manager, West Midlands Gas Board, Warwickshire Division, Gas Street, Coventry, to reach him within fifteen days of the appearance of this advertisement.

J. C. INGRAM,
Secretary to the Board.

WEST MIDLANDS GAS BOARD

NORTH STAFFORDSHIRE DIVISION
ASSISTANT MECHANICAL ENGINEER
STOKE-ON-TRENT DISTRICT

CANDIDATES should have served an apprenticeship in Mechanical Engineering, should possess drawing office experience, and have some experience in the preparation of estimates. The person appointed will be responsible to the Mechanical Engineer for plant maintenance, and for the control of skilled maintenance staff of all types.

The salary will be within A.P.T. Grade 8 (£660-£740 per annum) of the National Salary Scales for Gas Staffs.

The post is pensionable, and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two referees, should be addressed to Mr. J. E. Stanier, Divisional General Manager, West Midlands Gas Board, North Staffordshire Division, Etruria Gas Works, Stoke-on-Trent, to reach him within fifteen days of the appearance of this advertisement.

J. C. INGRAM,
Secretary to the Board.

WEST MIDLANDS GAS BOARD

CIVIL ENGINEERING DRAUGHTSMAN

APPLICATIONS are invited for the above position at Board Headquarters, Edgbaston, Birmingham.

The successful candidate will be required to assist in the design and layout of drawings of foundations and structures in reinforced concrete, and also steel frameworks in connection with the installation of new gas plants and other projects. Some practical experience in civil engineering draughtsmanship is essential.

Opportunity will be provided for graduates or holders of the Higher National Certificate to qualify for membership of the Institute of Civil Engineers.

The salary will be within Grade 9 (£700-£800 per annum) of the National Salary Scales for Gas Staffs.

The post is pensionable, and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two referees, should be addressed to the Industrial Relations Officer, West Midlands Gas Board, 6, Augustus Road, Edgbaston, Birmingham 15, within fifteen days of the appearance of this advertisement.

J. C. INGRAM,
Secretary to the Board.

NATIONAL COAL BOARD

DURHAM DIVISION
DIVISIONAL CARBONISATION ENGINEER

APPLICATIONS are invited for the above position. Applicants should hold a recognised qualification in Engineering and preferably have had experience of the installation and maintenance of carbonisation plant. Salary according to qualifications and experience on a range with a maximum of £2,000. Applications to be submitted within 14 days of advertisement to Assistant Secretary (E), National Coal Board, Durham Division, "D" Floor, Milburn House, Newcastle-on-Tyne, 1.

THE WOODALL-DUCKHAM COMPANY

has vacancies for
OPERATING ENGINEERS

CANDIDATES, who should preferably be young men, must have experience of Gasworks Carbonising Plant or Coke Ovens. Permanent and progressive posts are available for suitable men. Apply in writing, stating age, full particulars of education and experience, and salary required, to The Personnel Officer (O.E.), 63-77, Brompton Road, London, S.W.3.

GAS PURIFICATION & CHEMICAL COMPANY LIMITED

APPLICATIONS are invited from suitably qualified persons for the post of CHEMIST.

Candidates must be experienced in the normal gas works routine tests and have good knowledge of dry purification, and the testing of purifying materials. Excellent opportunity for young man of good education and initiative.

Applications, stating age, details of experience with names of two referees, to be addressed to:—

The Secretary,
Gas Purification & Chemical Company, Limited,
Palmerston House,
51, Bishopsgate,
London, E.C.2

JUNIOR DRAUGHTSMAN required by NORTH THAMES GAS BOARD in the Constructional Department of the Drawing Office at GASWORKS, BECKTON, E.6.

Applicants should be between 21-25 years of age, preferably holding the Higher National Certificate. Knowledge of general process plant on a Gasworks would be an advantage.

Starting salary within the range of £505-£600 per annum depending on age and qualifications.

Applications to Staff Controller, North Thames Gas Board, 30, Kensington Church Street, Kensington, W.8, quoting reference 666/274.

CHEMICAL or GAS ENGINEER required for interesting and varied work in Research and Development Department. Applicants should hold a B.Sc. in Gas or Chemical Engineering or the equivalent qualification, together with some industrial experience. A practical outlook is essential. The candidate must have fulfilled any National Service requirements.

Salary depending on qualifications and experience. The Company operates a 5-day week, a Staff pensions scheme and canteen and sports facilities.

Reply, giving full details of qualifications, experience and salary required, to The Secretary, Robert Dempster & Sons, Ltd., Rose Mount Iron Works, Elland, Yorks. Applications will be treated in confidence.

NORTHERN GAS BOARD

SUNDERLAND DIVISION
UNIT MANAGER—STANLEY/ANNFIELD PLAIN UNIT.

APPLICATIONS are invited from suitably qualified persons for the position of Unit Manager at the Stanley/Annfield Plain Unit, at a commencing salary within A.P.T. Grade 8/9 (£660/£800).

Candidates should have sound knowledge of Distribution practice and general administration of an undertaking of 8,800 consumers.

The post is pensionable and the successful candidate will be required to undergo a medical examination.

Application stating age, qualifications and details of experience together with the names of two referees, should be addressed to the undersigned not later than August 8, 1955.

W. O. KIRKWOOD,
Divisional General Manager.

P.O. Box No. 39,
Fawcett Street,
Sunderland.

(Classified advertisements continued on page 282)

It hits you . . .

. . . these days that the only way to sell an appliance or an electrostatic detarrer is to take the thing into your client's office. Which has its difficulties, as you may agree. But then you obviously have not seen the sort of 3-D slides produced by **Walter King Photographs,** who are specialists at the game. Why not see for yourself? Call, write, or 'phone them at 11, Bolt Court, Fleet Street, E.C.4. (CENtral 2236)

APPOINTMENTS VACANT (*ctd.*)

NORTHERN GAS BOARD

WESTERN GROUP
PENRITH DIVISION
ASSISTANT MANAGER—KESWICK UNDERTAKING

APPLICATIONS are invited for the position of ASSISTANT MANAGER of the Keswick Undertaking.

Candidates should be trained in the control of Gas Works plant and in routine laboratory tests.

The commencing salary will be within A.P.T. Grade VI (£565/£645 per annum) of the National Scales for Gas Staffs.

The successful candidate will be required to pass a medical examination and to join the Board's Staff Pension Scheme.

Applications stating age, experience, qualifications, together with the names of two referees, should be addressed to the Divisional General Manager (Penrith Division), 19, King Street, Penrith, within 14 days of this advertisement.

A. R. CROFT,
Group General Manager.

50, Castle Street,
Carlisle.
July 18, 1955.

NORTH WESTERN GAS BOARD

NORTH CHESHIRE GROUP

APPLICATIONS are invited for the following pensionable appointments:—

SENIOR TECHNICAL ASSISTANT (PRODUCTION)—DENTON NEW WORKS

The salary will be within Grade A.P.T. II (£785-£910 per annum).

The successful applicant will be responsible to the Station Engineer for the operational supervision and technical control of a Glover-West Continuous Vertical Retort Plant (nominal capacity 14 million cu.ft. per day) and modern C.W.G. Plants.

Applicants should possess the Higher Grade Certificate (Gas Engineering—Manufacture) of the Institution of Gas Engineers, or an equivalent qualification.

CHIEF CHEMIST—DENTON NEW WORKS

The salary will be within Grade A.P.T. II (£785-£910 per annum).

The successful applicant will be responsible to the Station Engineer for all the chemical control connected with the operation of the works and to carry out any special investigations which may be required from time to time.

Applicants should possess suitable technical qualifications. Gas works experience will be an advantage, although not essential.

Detailed applications, giving the names of two referees, should reach the General Manager, N.W.G.B. (North Cheshire Group), Great Portwood Street, Stockport, within 14 days.

EAST MIDLANDS GAS BOARD

LEICESTER AND NORTHANTS DIVISION
SENIOR TECHNICAL ASSISTANT (DISTRIBUTION)—NORTHAMPTON GROUP

APPLICATIONS are invited for the position of SENIOR TECHNICAL ASSISTANT to the Group Distribution Engineer at Northampton. The commencing salary will be within the range £620/£740 per annum according to age and experience.

Applicants must at least hold the Ordinary Grade Certificate in Gas Engineering (Supply), should have a thorough knowledge of modern methods of distribution, including high and low pressure systems, and be capable of carrying out the detail work in connection with the planning and estimating of new work.

The post is pensionable, and the successful applicant may be required to pass a medical examination.

Applications, stating age and giving details of education, qualifications and experience, together with the names of two referees, should be addressed to Mr. E. B. Craddock, Group Manager, 45, Abington Street, Northampton, not later than August 17, 1955.

H. B. TAYLOR,
Divisional General Manager.

Leicester.
July 22, 1955.

EAST MIDLANDS GAS BOARD

LEICESTER AND NORTHANTS DIVISION
APPOINTMENT OF
HOME SERVICE ADVISORY STAFF

APPLICATIONS are invited for vacancies which have arisen for HOME SERVICE ADVISORY STAFF in the NORTHAMPTON and WELLINGBOROUGH areas, as follows:—

(A) HOME SERVICE ADVISERS.

Salary range £338/£494 per annum.

Candidates must be capable of working independently and be in possession of a recognised Diploma in Cookery and/or Domestic Science. They should be proficient in the practical demonstration of gas cooking, laundering and other appliances, and be able to advise consumers on all domestic problems involving the use of gas in the home.

(B) HOME SERVICE ADVISER TRAINEES.

Salary range £219/£338 per annum.

Candidates should have spent some two or three years at a Domestic Science Training College or similar institution and possess a recognised diploma or qualification in domestic science. After a period of training to enable her to acquire a knowledge of the Gas Industry and gas appliances the successful applicant will be eligible for transfer to the status and salary of a Home Service Adviser, as above.

The posts are pensionable, and the persons appointed may be required to pass a medical examination.

Applications stating age and giving details of education, qualifications and experience, together with the names of two referees, should be addressed to reach the undersigned not later than Thursday, August 11, 1955.

Applicants should state whether they wish to be considered for employment in the Northampton area and/or the Wellingborough area.

H. B. TAYLOR,
Divisional General Manager.

Gas Offices,
Millstone Lane,
Leicester.
July 22, 1955.

EAST MIDLANDS GAS BOARD

EDUCATION AND WELFARE OFFICER

APPLICATIONS are invited for the position of EDUCATION AND WELFARE OFFICER in the Industrial Relations Department at Area Board Headquarters, Leicester. The commencing salary will be £1,250 per annum.

The duties will involve responsibility in an advisory capacity for the planning and co-ordination of education and training within the Board's organisation; the initiation and administration of training programmes for all classes of employees ranging from apprentices to higher management; and oversight of the Area Training Centre at Long Eaton. On the welfare side the duties will cover the Board's policy in regard to welfare amenities, sports and social clubs, etc.

The person appointed will be required to have high administrative ability; practical experience of training in industry; a knowledge of the educational world; and ability to lecture.

The position is pensionable, and the successful applicant will be required to pass a medical examination.

Applications stating age, education, qualifications, present appointment and previous experience, together with the names of two referees, should be sent to the undersigned by Monday, August 15, 1955.

A. GWYNNE DAVIES,
Secretary.

Beverley House,
University Road,
Leicester.

WELL-ESTABLISHED firm of Civil Engineering Contractors engaged principally on construction of Mains, Pipe Lines, Industrial Installations and ancillary construction work, requires an experienced OPERATIONAL AND ADMINISTRATIVE ENGINEER with contracting experience as MANAGING DIRECTOR to take full control. Basic salary and profit sharing provisions commensurate with appointment. Apply: No. 250, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

WALES GAS BOARD

PONTYPOOL UNDERTAKING
SHIFT SUPERINTENDENT

APPLICATIONS are invited for the position of Shift Superintendent at the above Undertaking. Candidates should preferably have had experience on Woodall-Duckham Continuous Vertical Retorts, and should have technical training in all gas works ancillary plant and equipment.

The salary will be within Grade A.P.T. 6 of the National Council for Gas Staffs—Provincial "A"—£565/£645 per annum, plus housing allowance. The post is pensionable.

The successful candidate will be required to pass a medical examination.

Applications, stating age, technical qualifications and experience, together with the names of two referees to be received by the undersigned not later than August 6, 1955.

A. FACER,
General Manager.

Wales Gas Board,
Pontypool Undertaking,
Gas Offices,
Hanbury Road,
Pontypool.

SCOTTISH GAS BOARD

KILMARNOCK GROUP
KILMARNOCK DISTRICT
TECHNICAL ASSISTANT—DISTRIBUTION

APPLICATIONS are invited from suitable persons for the post of TECHNICAL ASSISTANT in the Distribution Department of the Kilmarnock District Undertaking.

Applicants should have some experience of the work involved in the administration of a Distribution Department, with particular reference to the keeping of mains and service records and the preparation of drawings.

The grading applicable to the post is A.P.T. 4, Provincial 'A,' which at present is £365/£555 and the placing on the scale will depend on experience and qualifications.

Applications, endorsed—"Technical Assistant—Distribution"—giving age, qualifications, experience, and the names of two referees, should be addressed to the undersigned, to reach him within two weeks from the appearance of this advertisement.

ROBT. FIFE,
Group Manager.

Riverbank Gas Works,
Kilmarnock.

SCOTTISH GAS BOARD

PERTH GROUP
ALLOA/STIRLING SUB-GROUP

APPLICATIONS are invited for the following posts:—

ALLOA

(1) MAINS AND FITTINGS INSPECTOR for the Hillfoots Districts. Salary Intermediate Grade V £485/£530 per annum with free house at Alva Gasholder Station.

(2) SALESMAN for Alloa and District. Salary APT III (commencing on a probationary salary but rising to £535 per annum).

STIRLING

(3) MAINS AND FITTINGS INSPECTOR for the Stirling District. Salary Intermediate Grade V (£485/£530 per annum).

(4) SALES AND FITTINGS INSPECTOR for the outlying districts (Bridge of Allan, Dunblane and Doune). Salary Intermediate Grade IV (£460/£505 per annum). A rented flat available at Bridge of Allan.

(5) SALESMAN for Stirling and Districts. Salary APT III (commencing on a probationary salary but rising to £535 per annum).

Candidates for 1, 3 and 4 posts must have a sound knowledge of domestic appliances, gas fitting and distribution work generally. The Final Certificate of City and Guilds of London Institute in Gasfitting and/or Gas Supply required.

For positions 2 and 5, sales experience and/or a knowledge of domestic appliances is desirable.

Applications stating age, qualifications and experience, together with the names of two referees, should be addressed to W. M. Gledhill, Sub-Group Manager, Scottish Gas Board, Bank Street, Alloa, to reach him within fifteen days of the appearance of this advertisement.

W. NICOL BAIRD,
Group Manager.

Friarton,
Perth.

Commercial T.V. with no apologies

W. C. HOLMES & CO LTD · HUDDERSFIELD · LONDON · BIRMINGHAM

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man-cooling?

BECAUSE MEN CANNOT WORK at full stretch under the oppressive conditions existing in industrial "hot spots" without some means of relief. Often they resort to "taking a breather". But "breathers" are costly and time-wasting.

Consider the alternative.

The "Tornado" method of man-cooling definitely encourages production all the time. Man-cooling fans deliver, for as long as is necessary, a brisk, cooling air current which relieves excessive body heat and improves breathing conditions. Designed particularly for use in the "heavy" trades they combine an easy portability with robust construction — two essential characteristics.

If your concern is for workers in iron and steel works, foundries, boiler houses, gas retort houses, glass works or "lighter" industries where efficiency is bound up with the maintenance of comfortable working conditions then you should see Publication No. 9/7.

A copy is waiting for you.

EX-STOCK

Keith Blackman LIMITED

MILL MEAD ROAD, TOTTENHAM, LONDON, N.17

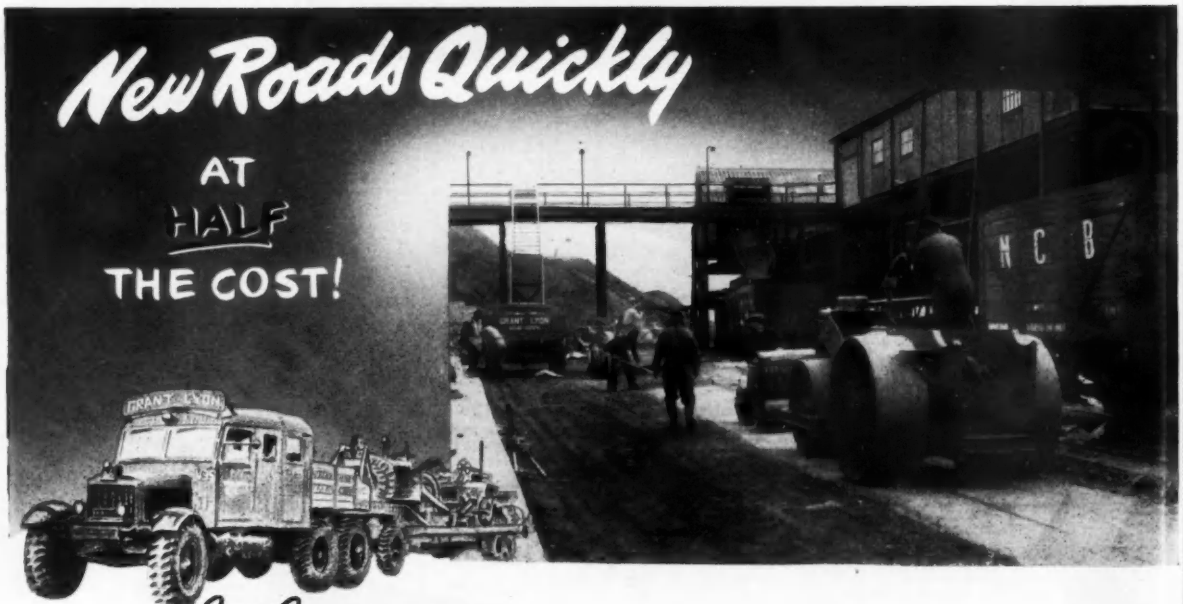
'Phone: Tottenham 4522 (twelve lines). 'Grams: "Keithblac, Norphone, London."

BRANCH OFFICES: AT MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW, NEWCASTLE-ON-TYNE, PENARTH near CARDIFF, AND BELFAST

486

New Roads Quickly

AT HALF THE COST!



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is the most economic method of laying road formations and the new close-coupled equipment, specially designed for single traverse operation, effects still greater savings in time, materials and money.

Soil stabilisation is ideal for constructing Highways, Byways, Estate Roads, Factory Approaches, Stockyards, etc. The Grant Lyon equipment illustrated above operates under expert scientific and civil engineering control, and early inquiries are solicited to fit in the tour of operation now being planned.

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GLOVER – WEST

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GC2

NEAT

FA-NEAT GAS COOKING RINGS *never light back!*

FA NEAT COOKING RING
Type FA/1
Light and compact. Finished in grey vitreous enamel or cream at small extra cost. Available with two rings — type FA/2.

FA NEAT UNIT BURNER
Type FA/4
Sturdily constructed appliance that will stand up to hard usage. Standard grey finish. 2, 3 and 4 units.

FA NEAT TWO-BURNER HOTPLATE — Type FA/4/2
This is an extension of the Single-Burner Hotplate and incorporates the same features. Ideal for casserole cooking or general uses.

✳ However low gas jet is turned, it will not "pop back".

✳ Robust construction and vitreous enamel finish combine long life with elegance.

✳ The burner is silent whatever the setting of the tap.

✳ Pan supports are removable for easy cleaning.

These handsome FA Neat gas hotplates are extremely useful in house, flat or bed-sitting room. Clean, efficient and economical, they are fully capable of cooking a simple casserole meal or for use as a general purpose appliance.

ASCOT

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